SONY

3-753-530-21(2)

FM Stereo/FM-AM Receiver

Operating Instructions

STR-AV1070X
STR-AV970X

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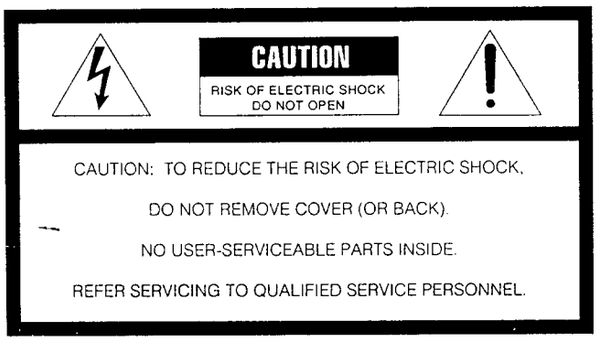
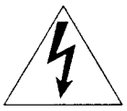
Warning

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol in intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Note to CATV system installer
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Owner's Record

The model number is located on the rear exterior and serial number is on the rear. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No._____ Serial No._____

For the customers in Canada

CAUTION :
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

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Outline

The STR-AV1070X/AV970X is an FM Stereo/FM-AM receiver and audio/video control center.
You can enjoy various audio/video program sources with this unit.

TV/video programs
- You can enjoy TV or CATV programs with FM simulcast.
- Sounds from various audio program sources can be added on video tapes during editing.

Tuner
- Precise tuning is ensured by a quartz lock digital synthesizer.
- Station Index system allows you to tune into a station quickly.

Remote control
- The supplied remote commander allows you to remotely control both the unit and the equipment connected to the unit.
- The commander supplied with the STR-AV1070X can learn various functions of other remote commanders of the infrared type.

Display
- The frequency of each tuned-in broadcast station is displayed.
- The current selection/operation is displayed to clearly indicate what is taking place.

Electronic graphic equalizer
- You can enjoy audio program sources with an appropriate equalization curve.

Surround sound system
This unit incorporates all of 3 types of surround effect.
- **DOLBY PRO LOGIC** : The STR-AV1070X and the STR-AV970X incorporate the Dolby Pro Logic Surround Decoder which has the same functions for playback, as movie theaters and gives a theater-like experience in your listening room, naturally reproducing the audio sound field.
- Hall Surround-provides reverberation effect that is produced in a large concert hall.
- Simulated Surround-gives the feeling of width and thickness to monaural sound of old movie program, etc.
- The input balance of Dolby surround program sources is automatically adjusted.

Sound field
- The sound field function has 11 combinations of surround effect, equalizer curve, and DBFB (Dynamic Bass Feed Back). With an appropriate sound field setting, you can enjoy audio program sources as your preference.
- Combined use of the sound field function and the preset station index system allows you to enjoy broadcast listening immediately with the memorized sound field setting.

Dual room link control (DRLC)
- The DRLC function allows you to link a second room to your main or primary listening room. You can enjoy listening to either the same program source being played in the main room or a different program source in the second room.

Precautions

On safety
- Operate the unit only on 120 V AC, 60 Hz.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.
- One blade of the plug is wider than the other for the purpose of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.

On operation
Before making program source connections, be sure to turn the power switch off and unplug the unit.

On cleaning the cabinet
Clean the cabinet, panel and controls with a soft cloth lightly moistened with mild detergent solution. Do not use any type of abrasive pad, scouring powder, or solvent such as alcohol or benzine.

For the customers in the U.S.A.
For detailed safety precautions, see the "IMPORTANT SAFEGUARDS" leaflet.

If you have any question or problem concerning your unit, please consult your nearest Sony dealer.

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* Manufactured under license from Dolby Laboratories Licensing Corporation. Additionally licensed under one or more of the following patents: U.S. numbers 3,632,886, 3,746,792, and 3,959,590. Canadian numbers 1,004,603 and 1,037,877. "DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

Installing

Notes on Installation

To prevent internal heat buildup in the unit,
place the unit in a location with adequate air circulation.

Do not install the unit:
— near heat sources such as radiators or air ducts.
— in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

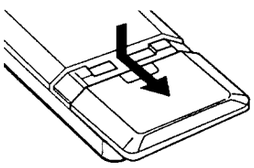
Do not place anything on top of the cabinet.
The top ventilation holes must be unobstructed for the proper operation of the unit and to prolong the life of its components.

Do not throw away the carton and packing material!
It will be an ideal container when transporting the system for repair work, etc.

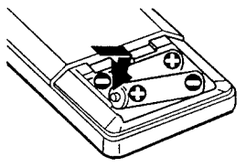
Loading the Remote Commander with Batteries

Before operating remote commander, install the batteries as shown.

1



2 Two size AA (R6) batteries



To avoid damage caused by battery leakage and corrosion
When the commander will not be used for a long time, remove the batteries.

Battery life
Normal operation can be expected about a half year using Sony SUM-3 (NS), and a year using Sony AM-3 (NW) alkaline batteries.
When the batteries are run down, the remote commander will not operate the unit. In this case, replace batteries with new ones.

Changing the AM tuning interval
The AM tuning interval is preset to 10 kHz. To use the receiver where the frequency allocation system is based on a 9 kHz interval, make the following adjustments.

1 Turn on the power and tune in any AM station.
2 Turn off the power.
3 Press the POWER button while pressing the "+" PRESET TUNING button.

To reset the AM tuning interval, repeat the above steps.

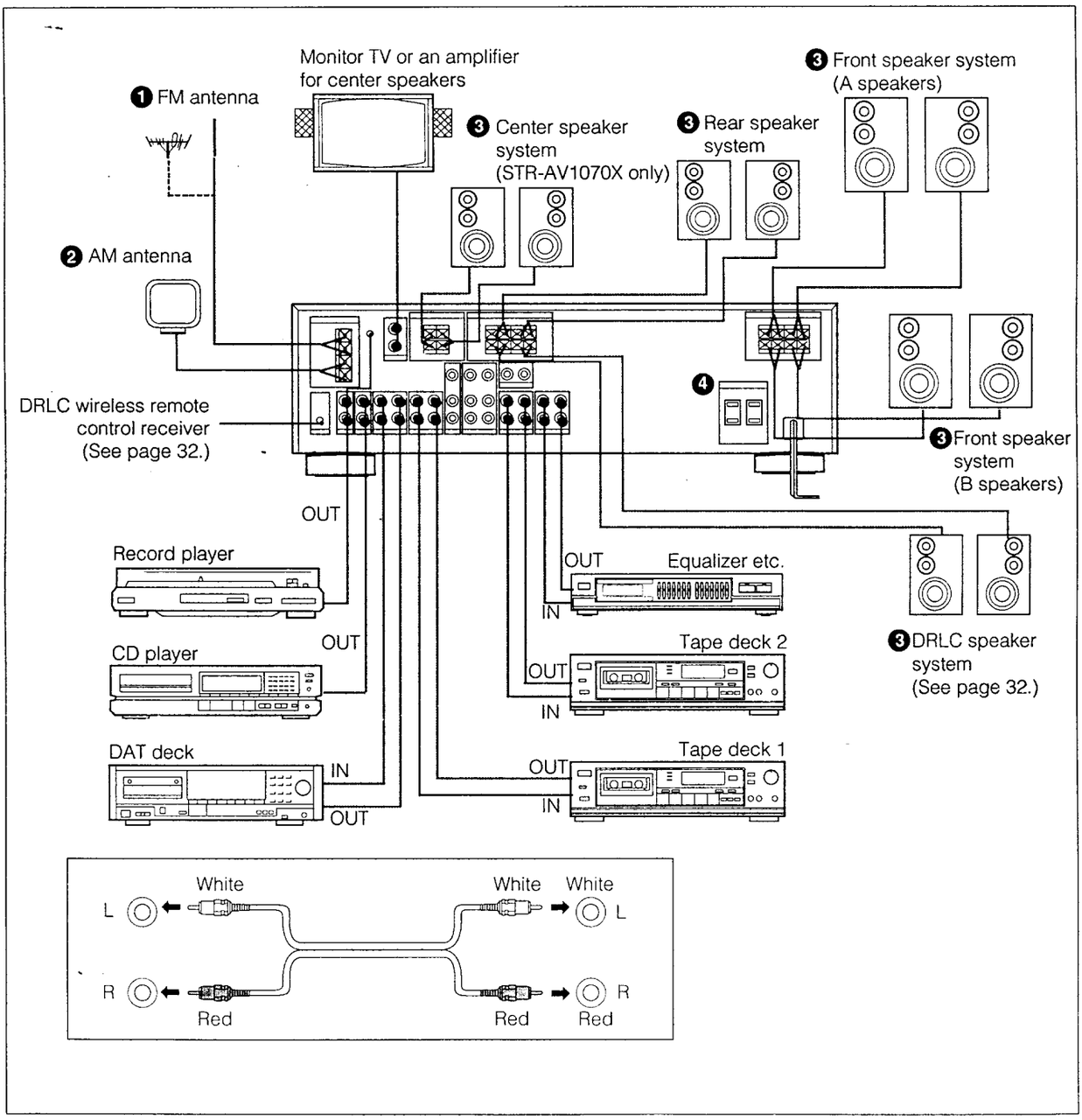
Caution
When the interval is changed, all preset stations which you have memorized will be erased. After changing the interval, be sure to preset the stations again.

Connections

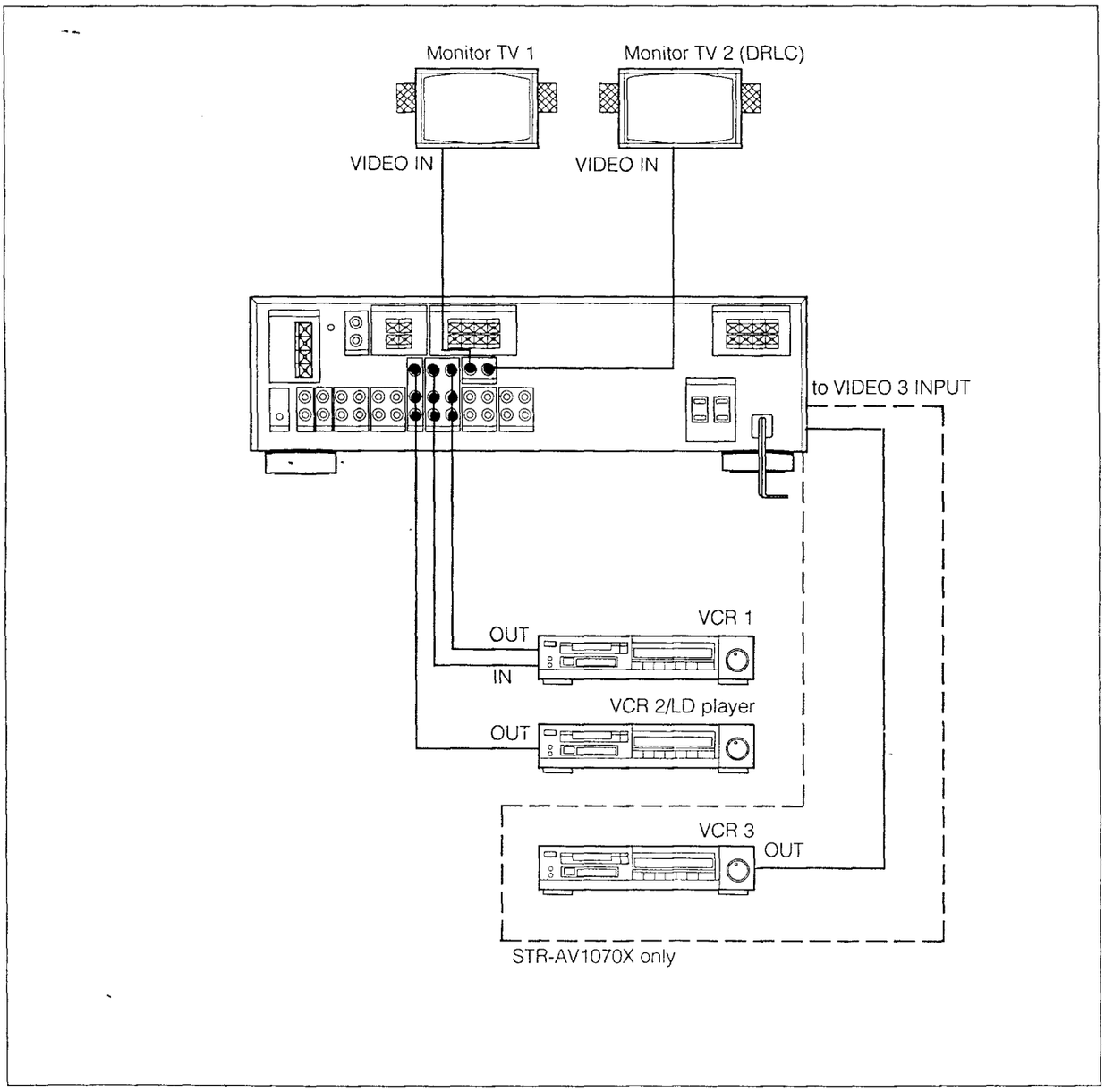
Notes on Connections

- Do not connect the power cord to an AC outlet nor press the POWER switch before accomplishing all other connections.
- The cable connectors should be fully inserted into the jacks. Loose connection may cause hum and noise.
- Jacks and plugs of the connecting cord are color-coded as follows:
  Red jacks and plugs: For the right channel of audio signals
  White jacks and plugs: For the left channel of audio signals
  Yellow jacks and plugs: For video signals

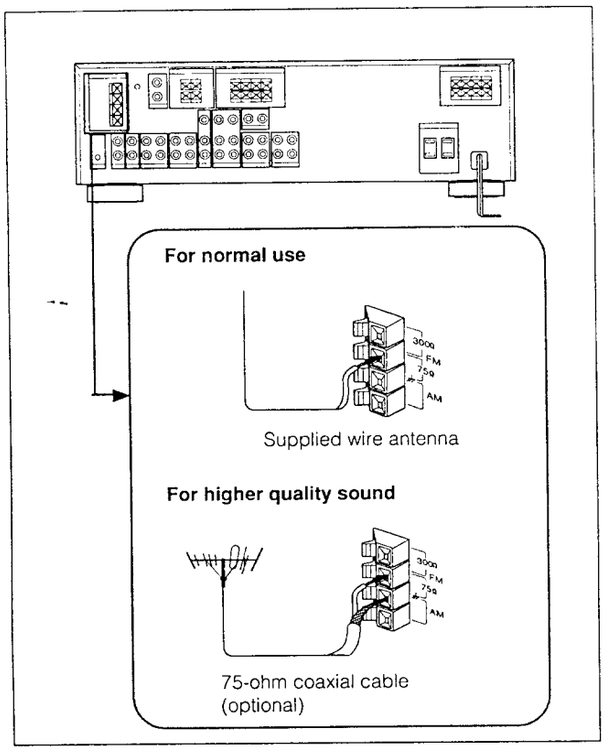
Connecting Audio Equipment



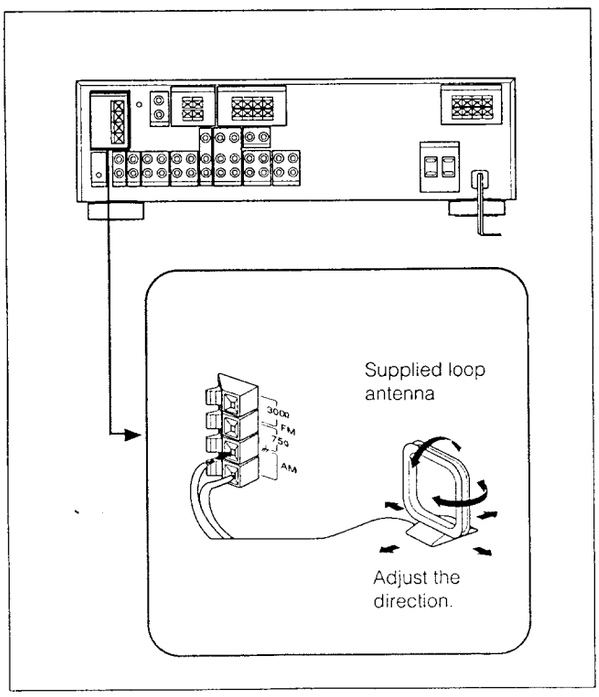
Connecting Video Equipment



① Connecting the FM Antenna



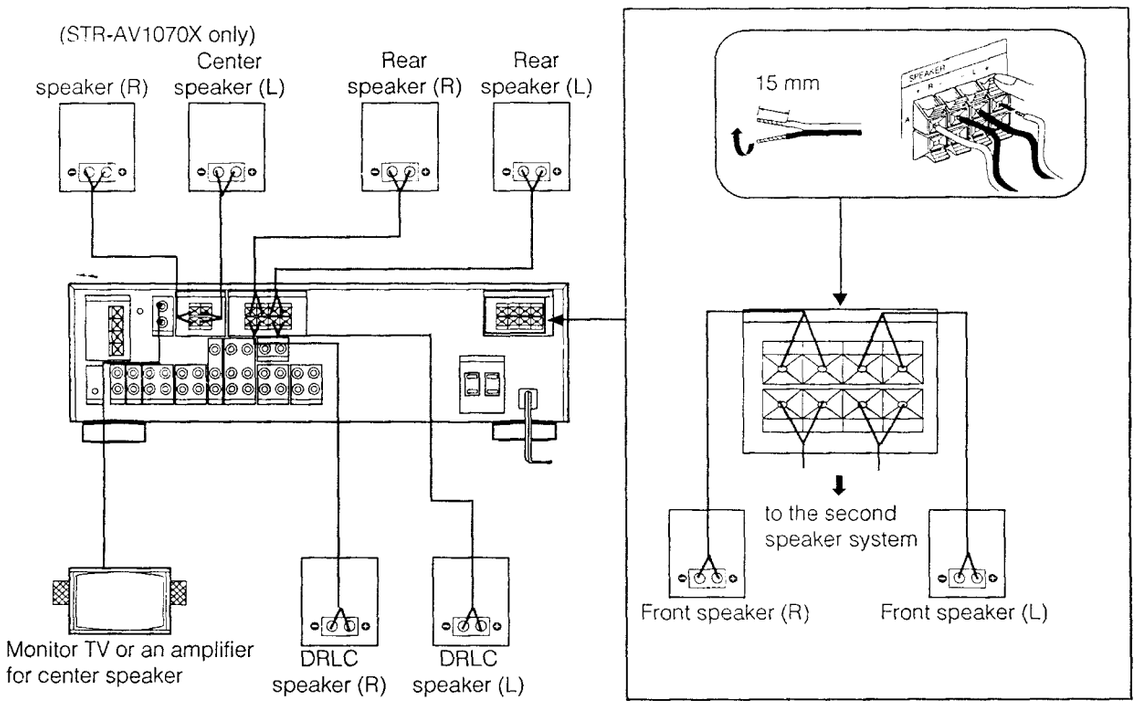
② Connecting the AM Antenna



For areas with difficult AM reception
In areas with troubled reception, connect a 6 to 15-meter (20 to 50-foot) insulated wire to the AM antenna terminal. Extend this out of doors if possible, keeping the greater portion horizontal.
(There is no need to disconnect the supplied antenna.)

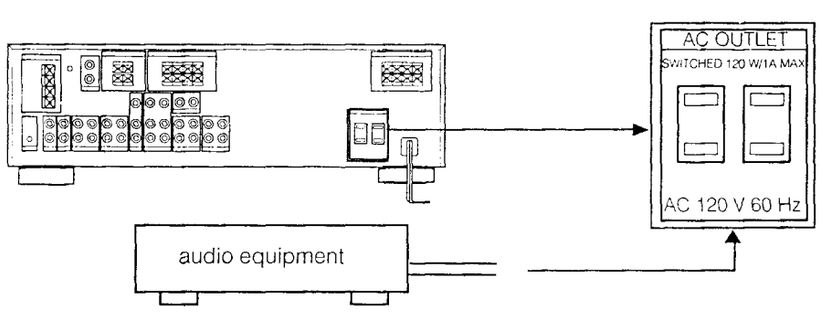
To prevent hum
Connect the ground wire to ANTENNA ground terminal (⏚). When an outdoor antenna is installed, be sure to connect the ground wire for lightning protection.

③ Connecting Speaker Systems



Speaker impedance and power capability
This receiver is designed to work best with speakers having nominal impedance from 8 to 16 ohms. Be sure to use a speaker system with adequate nominal impedance and power handling capabilities.

④ Connecting the AC Power

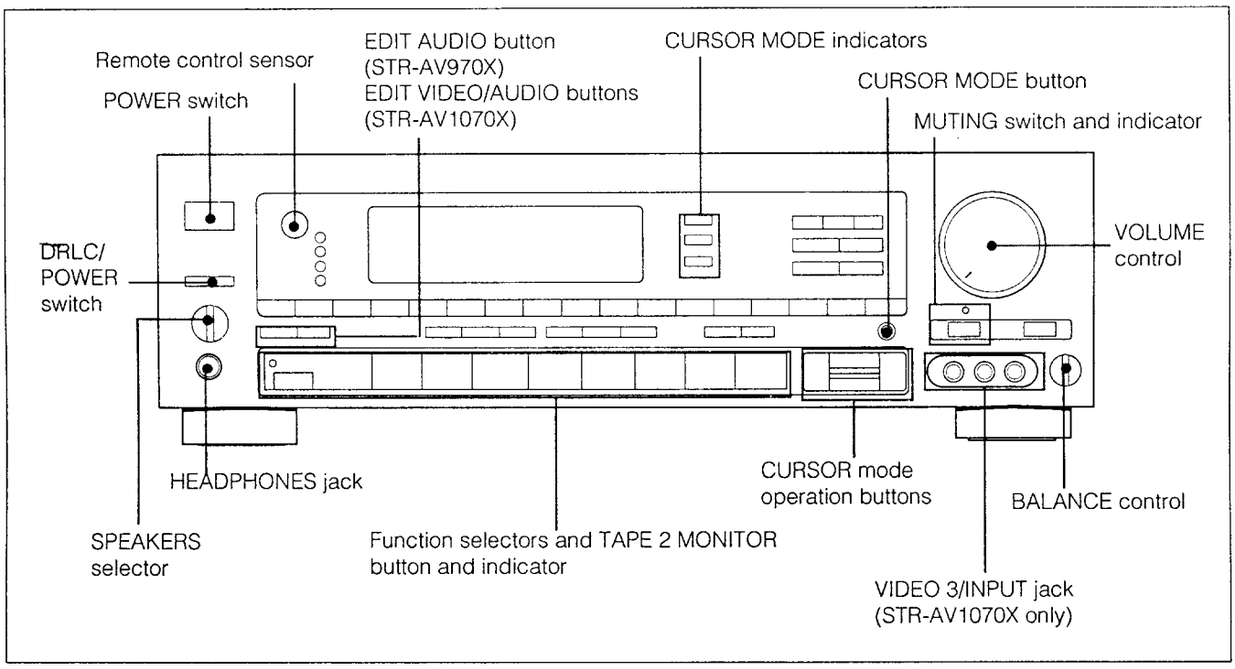


Caution
Be careful that the total power consumption of each equipment connected to the outlets on the receiver does not exceed 120 watts. Do not connect electrical home appliances such as an electric iron, fan, TV, or other high-wattage equipment to these outlets.

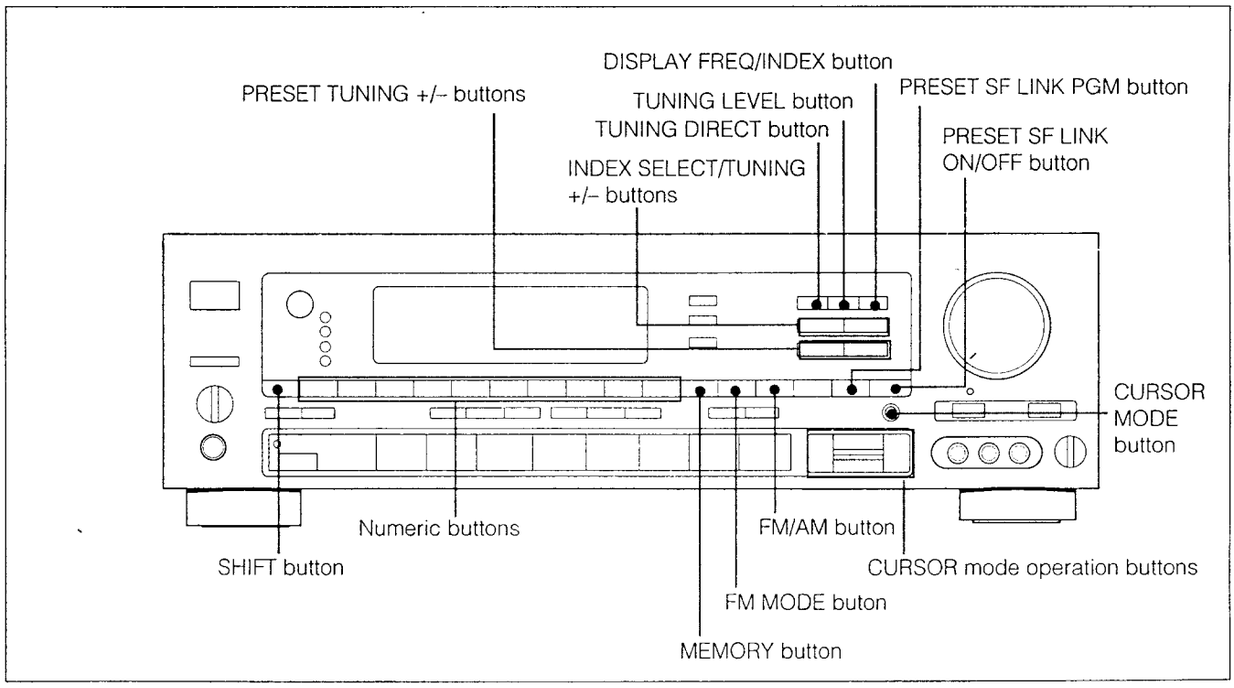
Parts Identification

Front Panel

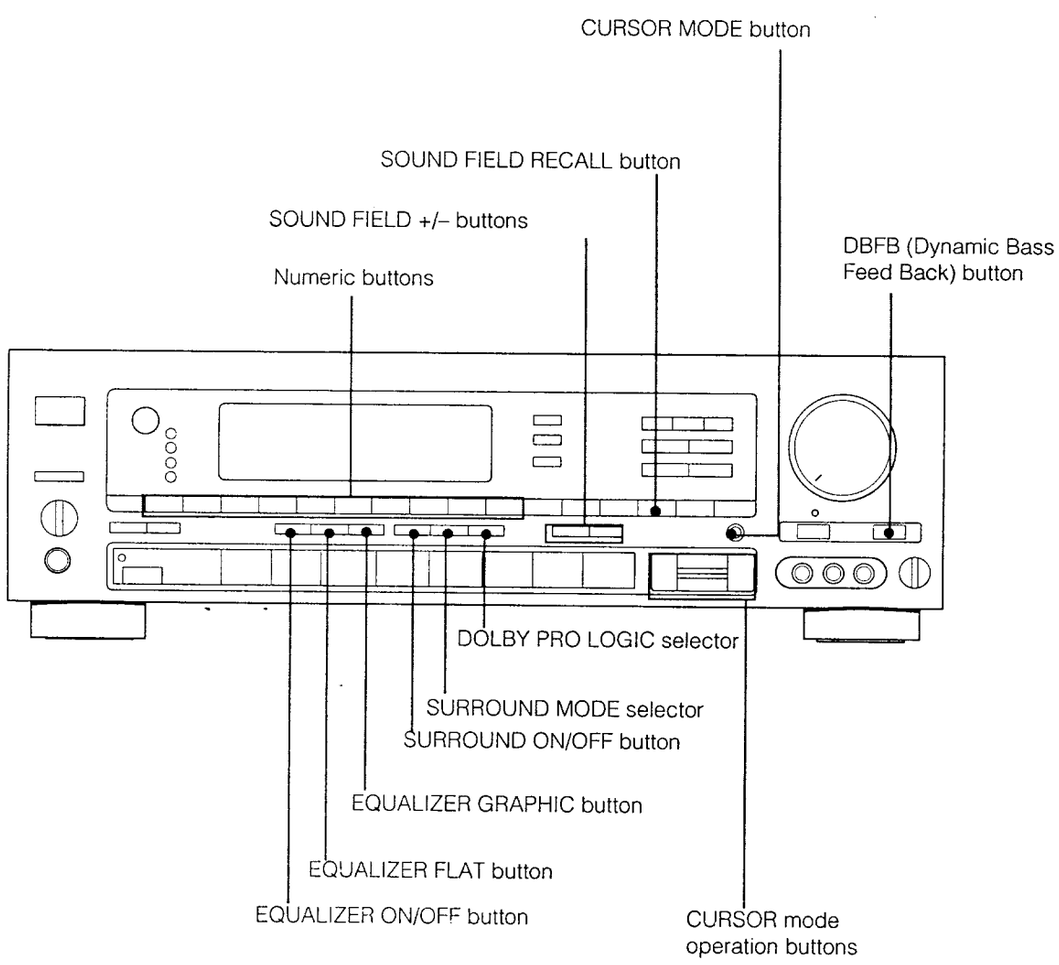
Amplifier and general section



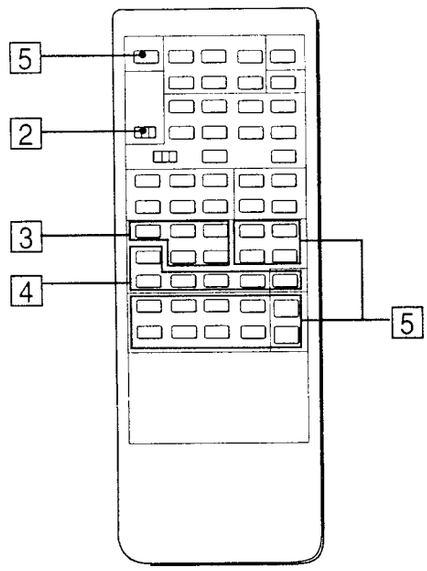
Tuner section



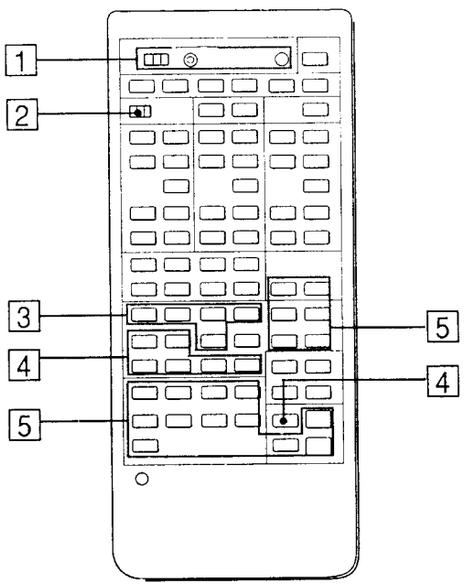
Sound field control section

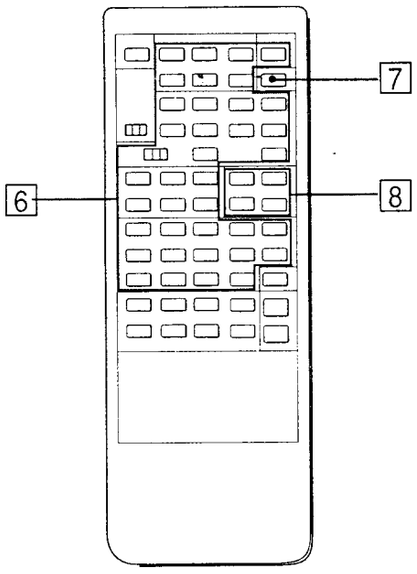


Remote Commander

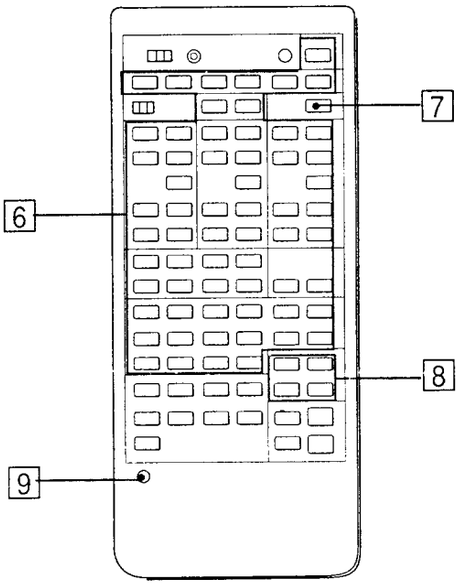


RM-U211
(supplied with the STR-AV970X)





RM-P311
(supplied with the STR-AV1070X)



[1] **Program control section (RM-P311 only)**

Mode selector and indicator (page 34)
SONY STD: To control Sony equipment.
USER STD: To control equipment whose remote control functions are stored.
LEARN: To store functions of other remote commanders emitting infrared rays.
PROGRAM CLEAR button: Clears the stored functions.

[2] **MODE selector**

1: To select the functions indicated in light gray such as DECK, DAT, CD player and CURSOR/ SURROUND mode of the receiver.
2: To select the functions indicated in blue such as VTR, LDP (Laser disc player) and TV.

[3] **Cursor control section**

CURSOR operation buttons
MODE button: Selects cursor mode.

[4] **Sound control section**

SURROUND buttons
ON/OFF: Turns on/off the surround mode.
MODE: Selects the surround mode.
T. (test) TONE: Generates a pink noise signal that is sent in succession to each speaker.
EQ (equalizer) ON/OFF button: Turns on/off the equalizer.
S.(sound) FIELD buttons
MODE: Selects sound field mode.
USER/PRESET button (RM-P311 only): This button does not operate.
DBFB button (RM-U211 only): Turns on/off the DBFB (Dynamic Bass Feed Back).
DDS/DBFB button (RM-P311 only): Turns on/off the DBFB (Dynamic Bass Feed Back). (DDS function is not available with this receiver.)

[5] **Amplifier section**

FUNCTION selectors: Select an input source of the receiver. (The VIDEO 3 button does not operate on the STR-AV970X.)
DIGITAL button (RM-P311 only): This button does not operate.
REAR LEVEL +/– buttons: Control the volume of rear speakers (surround level).
MUTING button: Mutes the sound.
MASTER VOL +/– buttons: Control the receiver volume.
CENTER LEVEL +/– buttons : Control the volume of center speaker (surround level).
ON SCREEN buttons (RM-P311 only)
ON/OFF button: This button does not operate.
TITLER ON/OFF button: This button does not operate.

[6] **Control for other equipment**

Power control block

SYSTEM OFF button: Turns off the power of the whole system: LDP, VTR, TV and AUDIO.
LDP/VTR/TV/AUDIO POWER buttons: Control the power of each unit.

CDP/LDP control block

D (disc) SKIP: Disc skip (for a CD player equipped with a multi-disc changer)
►: Starts play.
I◄◄/►►I: Locates a desired selection (for a CD player only with RM-U211)
■: Stops play.
◄◄/►►: Manual search (for a laser disc player only with RM-U211)
II: Pause

TAPE/DAT/VTR control block

ANT TV/VTR button: Selects the output signal from the antenna terminal on the VCR, either a TV signal or VCR programs.
VTR CH +/– buttons: Select channel on the VCR.
◄◄/►►: fast winding
■: Stop
◄/►: Play
II: Pause
●: Recording (RM-U211: While pressing ●, press ►)
REC MODE REV/FWD buttons (RM-P311 only):
For reverse recording, press REV and ● together.
For forward recording, press FWD and ● together.
DECK/VTR selector (RM-U211 only)
MODE 1(DECK A,B and DAT): Selects DECK A, B or DAT.
MODE 2(VTR 1, 2 and 3): Selects VTR 1, 2 or 3.
VTR 1: Betamax VCRs
VTR 2: 8mm VCRs
VTR 3: VHS VCRs

TV control block

TV/VIDEO selector: Selects the program to see : TV or VIDEO.
VOL +/– buttons: Control the TV volume.
CH +/– buttons: Select a preset channel.
Program number (1 to 0) and ENTER buttons: Select the channel.

[7] **SLEEP button**

Set to the SLEEP timer mode. In this mode, the unit is automatically turned off after 60 minutes.

[8] **Tuner section**

INDEX SELECT and INDEX buttons: Select an indexed preset station.
TUNER SHIFT and PRESET +/– buttons: Select a preset station.

[9] **RESET button (RM-P311 only)**

Reset the commander to the initial state.

Note on the ● (recording) button under [6] TAPE/DAT/VTR buttons

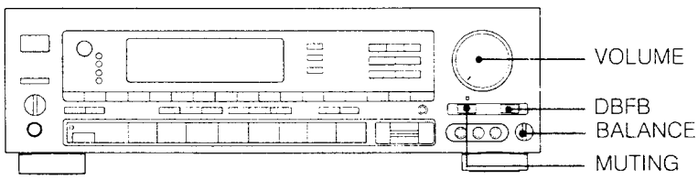
If your recorder is of such type as pressing ● puts it in recording pause mode, first press ● on this commander and then II.

Note:

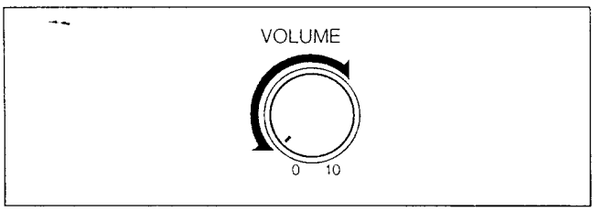
The ◄/► (play) buttons in [6] and the SHIFT button and PRESET +/– buttons in [8] can function without pressing one of the FUNCTION buttons in [5], if the CD player is connected to the CD jacks, the tape deck to the TAPE jacks and the video deck to the VIDEO 1 jacks (switch the DECK/VTR selector on the remote commander to VTR 1).

Audio Adjustment

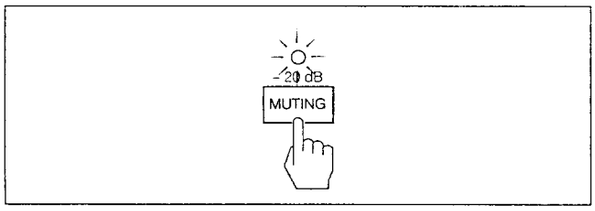
You can enjoy superb sounds using the audio adjustment functions as shown below.



Adjusting Volume

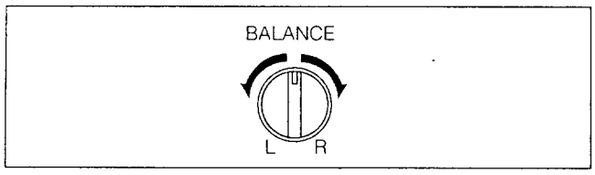


To adjust volume
Turn VOLUME.



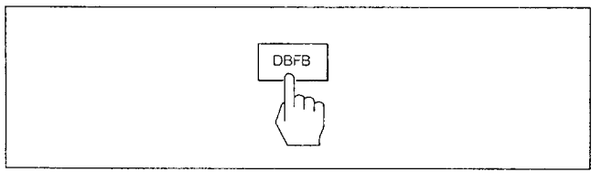
To reduce the sound to a low level temporarily (– 20 dB attenuation)
Press MUTING.
Press again to restore the same listening level as before.

Adjusting Left and Right Sound Balance



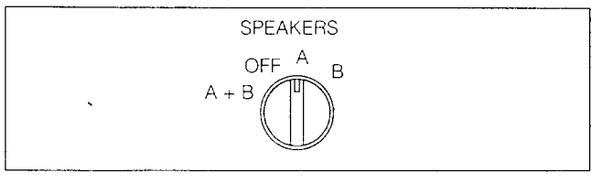
Adjust BALANCE to correct stereo imaging, when the speaker position is not symmetrical.

Reinforcing the Bass



Press DBFB (Dynamic Bass Feed Back) so that DBFB ON appears on the display.
Press again to turn off the effect so that DBFB OFF appears on the display.

Selecting the Speaker System

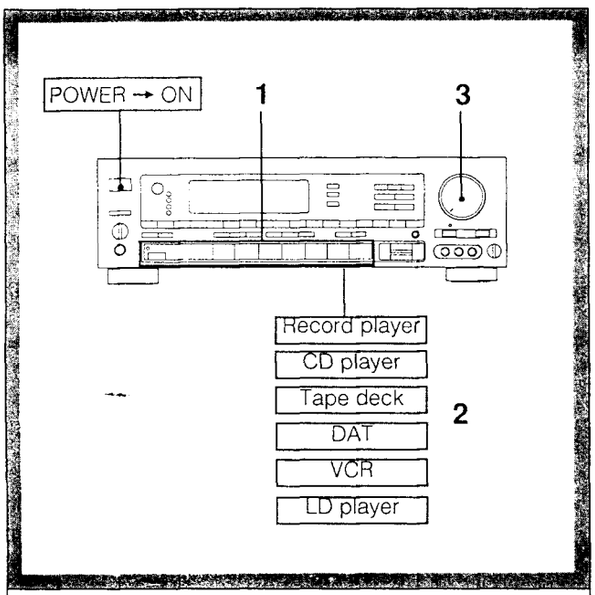


To drive speaker system A: Set SPEAKERS to A.
To drive speaker system B: Set SPEAKERS to B.
To drive both speaker systems A and B: Set SPEAKERS to A + B.
For headphone listening: Connect headphones to HEADPHONES and set SPEAKERS to OFF.

IMPORTANT

Speaker systems A and B are series connected. No sound can be heard if the SPEAKERS selector is set to A + B when only one speaker system is connected.

Selecting a Program Source



1 **Select the progam source.**

	FUNCTION selector to be pressed
Phono record	PHONO
Radio Broadcast	TUNER
Compact disc	CD
DAT programs	DAT
Taped programs	TAPE 1, TAPE 2 MONITOR
Video programs	VIDEO 1, VIDEO 2/LD, VIDEO 3 (STR-AV1070X)

2 **Start the selected program.**

3 **Adjust the volume.**

To sample the Receiver's Functions

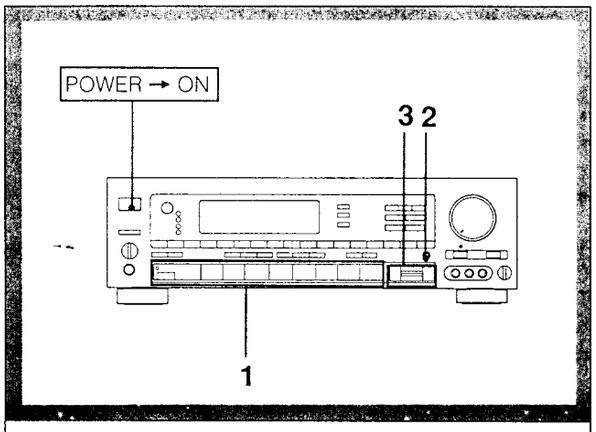
Keep pressing the FREQ/INDEX button for more than 3 seconds.
The receiver enters the demonstration mode in which the receiver demonstrates its functions in the following order. The circled numbers indicate the page where the operation of the functions is explained.

- Equalizer control (Page 27)
- Sound field settings (Page 30)
- Surround effect (Page 28)
- Station index (Page 21)
- Dual room link control (Page 32)

To stop the demonstration
Press any button other than FREQ/INDEX.
The receiver enters the mode corresponding to the pressed button.

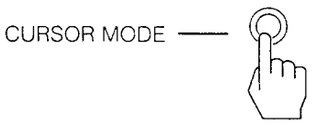
Labeling the Program source

You can input program sources under index names you create (up to 11 characters); for example, PHONO, TUNER, CD etc.

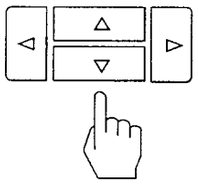


1 **Select the program source.**

2 **Select the INDEX mode.**



3 **Create an index name.**



To select a letter or number (1 - 9), press △ or ▽.
To change the position, press ◁ or ▷.

4 **Repeat Steps 1 to 3 for all other program sources you want to assign an index name to.**

Each program source can be stored under only one index name

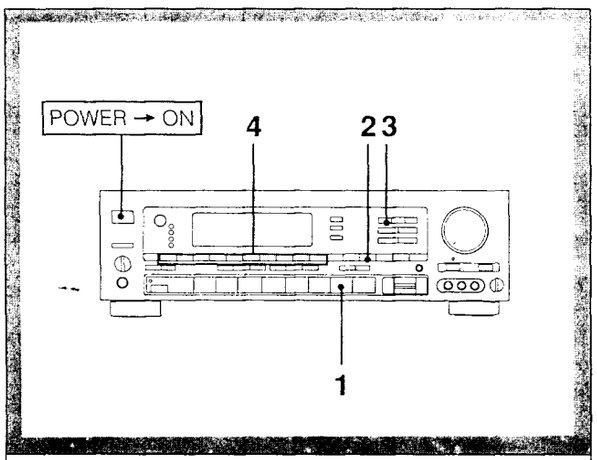
If you input an already stored source under any other index name, only the last selected source will be valid.

To display the selected function and its name you create

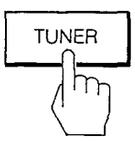
Each time the FREQ/INDEX button is pressed, the selected function and the created name are alternately displayed.

Radio Reception

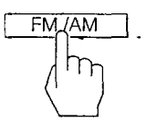
Tuning in a Station Directly — Direct Tuning



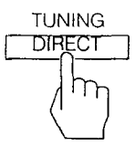
1



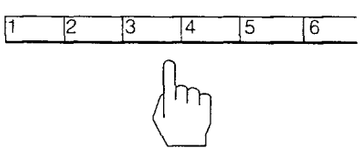
2 Select FM or AM.



3

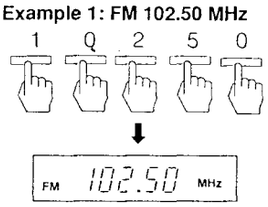


4 Enter the frequency.

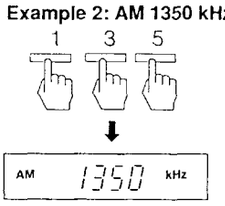


The entered frequency is displayed.

Example 1: FM 102.50 MHz



Example 2: AM 1350 kHz



To correct the entered frequency
Repeat Steps 3 to 4.

For entering AM frequencies, you need not enter the last "0".
However, if you have changed the AM tuning interval to 9 kHz, enter all the digits.

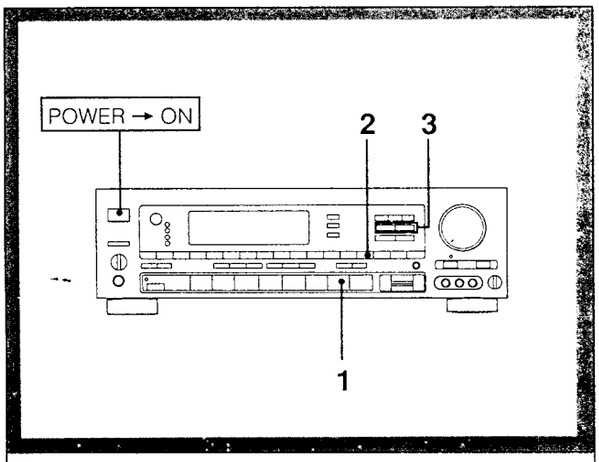
If you enter a frequency not covered by the tuning interval
The entered value is automatically rounded up or down to the closest value covered by the tuning interval.
Tuning intervals for direct tuning are the followings:
FM: 50 kHz interval
AM: 10 kHz interval (changeable to the 9 kHz interval)

When the entered number is not in the receivable frequency range
The entered digits (up to 5 digits for FM or up to 3 digits for AM) blink in the frequency display area, and reception does not take place.
If this occurs, press TUNING DIRECT again, and enter the correct frequency (the frequency range of the receiver is 87.50 to 108.0 MHz for FM, and 530 to 1710 kHz for AM).

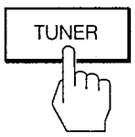
When an FM stereo program is noisy
When the unit receives an FM stereo program, the STEREO indicator goes on in the display window, If the stereo program is noisy, press FM MODE to change the mode over the MONO. This eliminates the stereo effect, but the noise will be greatly reduced.
To return to the stereo mode, press FM MODE again.

Scanning Stations Automatically — Auto Tuning

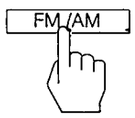
When you do not know the frequency of the station, proceed as follows.



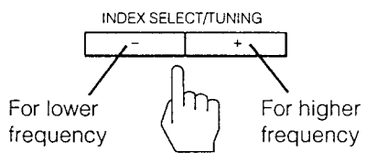
1



2 Select FM or AM.



3



When a station is received, automatic tuning stops.

4 Repeat step 3 until the desired station is received.

If the automatic scan stops frequently (for FM reception only)

You can select the signal level to receive, so that the scan stops only at the stations with the strong signal.

To select the signal level

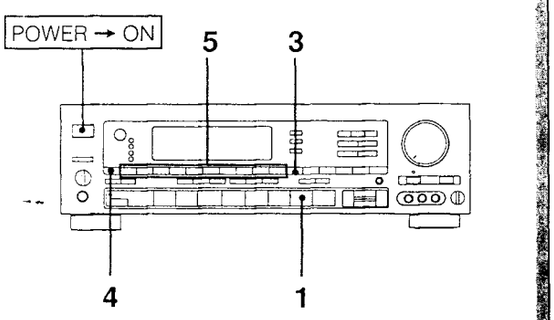
Press the TUNING LEVEL button so that the HIGH indicator lights up on the display.

To receive lower signals again

Press the TUNING LEVEL button.
The HIGH indicator disappears, and the scan stops at all receivable stations.

Presetting Stations — Station Preset

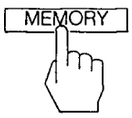
A total of 30 FM/AM stations can be memorized in any desired sequence.



1

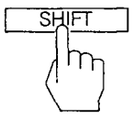
2 Tune in the desired station.
(See "Auto Tuning" or "Direct Tuning".)

3

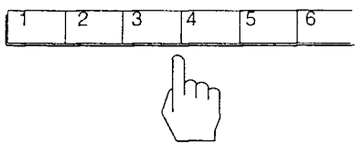


The MEMORY indicator appears for a few seconds.

4 While the MEMORY indicator is on, select the memory page (A, B or C).



5 While the MEMORY indicator is on, press the desired number.



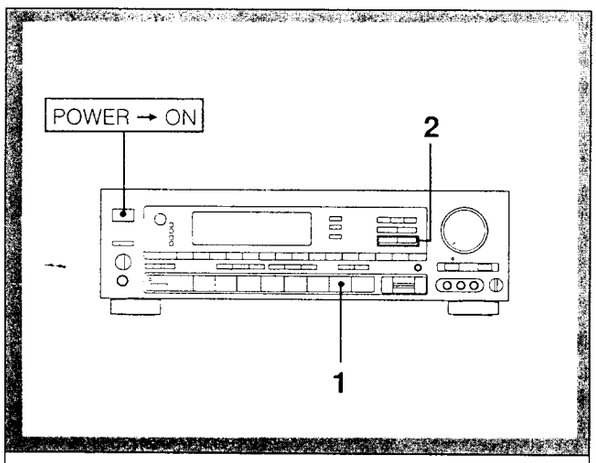
Repeat above steps for presetting other desired stations.

Replacing a preset station
Preset another station on the number of the station to be replaced. The previously preset station will be erased.

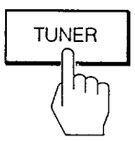
Memorizing FM mode
The FM MODE setting is also memorized in the station presetting.
In step 2, select the STEREO or MONO mode with the FM MODE button, if necessary.

Tuning in a Preset Station — Preset Tuning

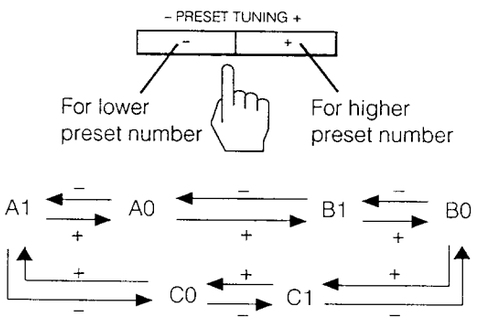
Method A



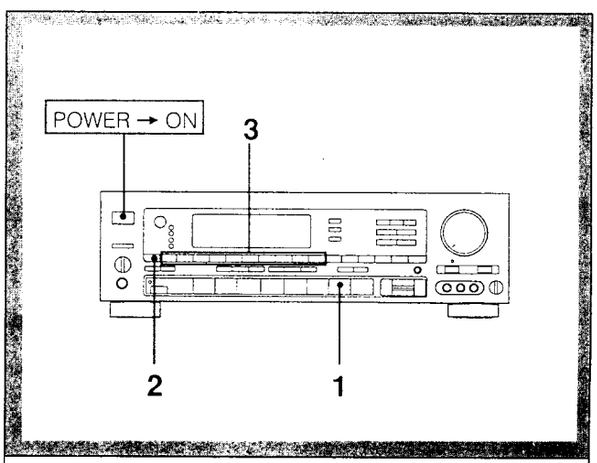
1



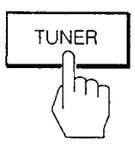
2 Select the desired preset station.



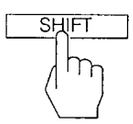
Method B



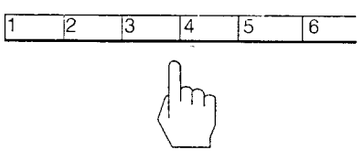
1



2 Select the memory page (A, B, or C).



3

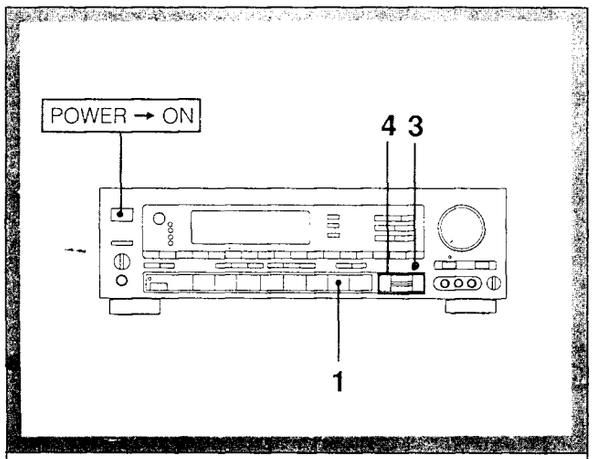


IMPORTANT

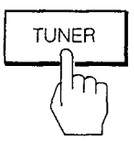
The memorized station is maintained for approximately one month even if the power cord is disconnected from the AC power source. If they are erased, store the stations again.

Labeling the Preset Stations — Index Input

You can divide preset stations under index names you create (up to 5 characters). If you want to categorize the preset stations by kinds of music, for example, create indexes such as ROCK, JAZZ, etc.

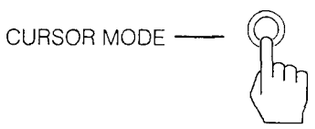


1

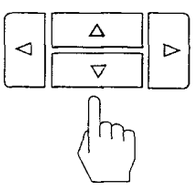


2 **Tune in the desired station with Preset Tuning.**

3 **Select the INDEX mode.**



4 **Create an index name.**



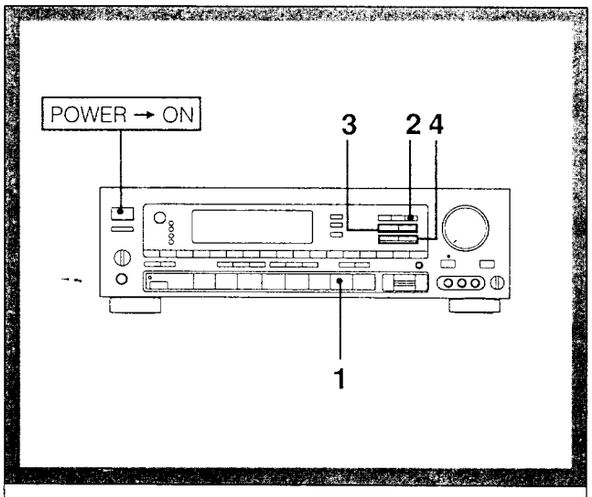
To select a letter or number (1 - 4), press △ or ▽.
To change the position, press ◁ or ▷.

5 **Repeat Steps 2 to 4 for all other stations you want to assign an index name to.**

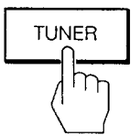
Each station can be stored under only one index name
If you store an already categorized station under any other index name, only the last selected category will be valid.

To display the frequency and index name of preset stations
Each time the FREQ/INDEX button is pressed, frequency or index name of the preset station is alternately displayed.

Selecting a Station among the Preset Stations having the Same Index -- Index Tuning



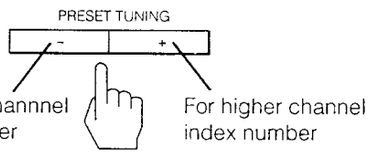
1



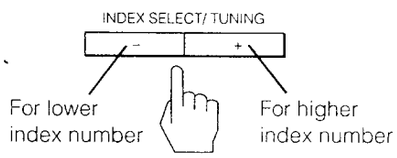
2 Select the INDEX mode.

When the no index name is memorized, the NO INDEX indicator appears on the display.

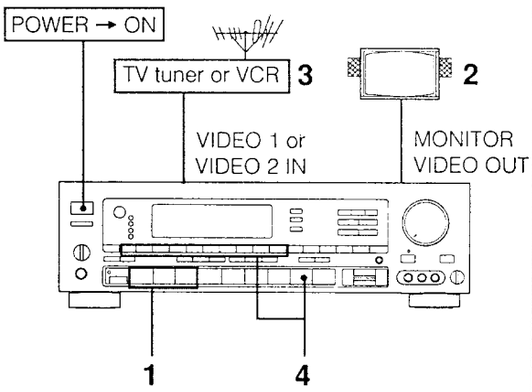
3 Select the desired station. (Same index)



4 To select another index station.



Receiving FM Simulcast TV programs

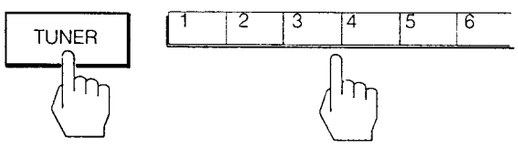


1 Select VIDEO 1 or VIDEO 2/LD or VIDEO 3 (STR-AV1070X only).
According to video inputs connected to an equipment to which the VHF antenna is connected.

2 Turn on the monitor TV.

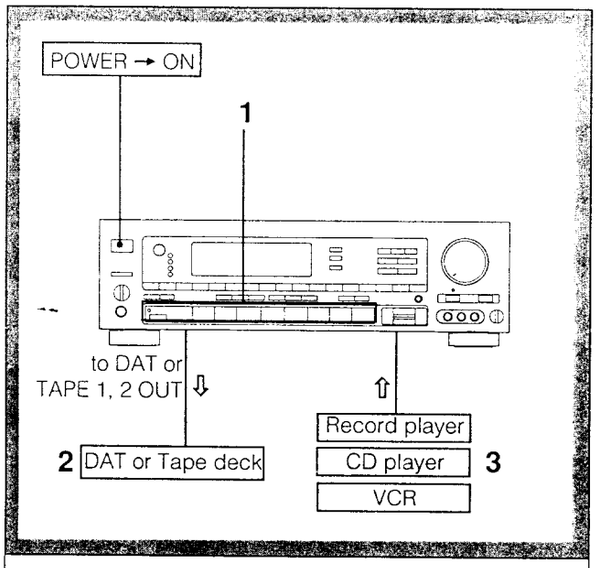
3 Select the desired program on the TV tuner or the VCR.

4 Select TUNER and tune in the FM simulcast TV program on the receiver.



Audio Recording

Recording on an Audio Tape Deck or DAT Deck

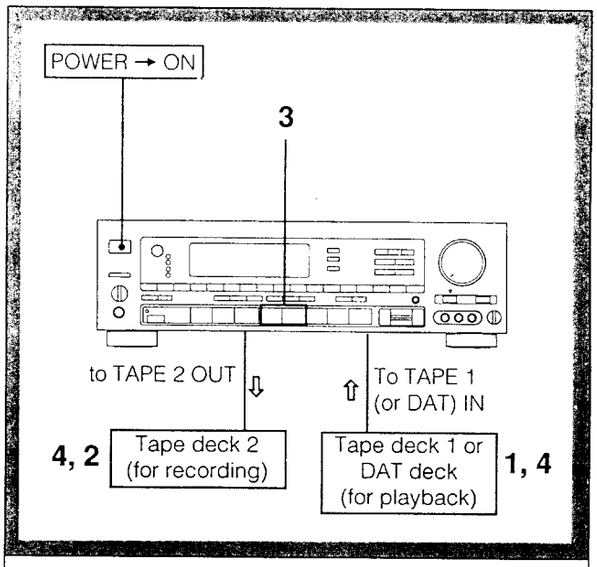


1 Select the desired program source with the FUNCTION selector.
For an FM/AM broadcast, tune in the desired station

2 Set the tape (DAT) deck in the recording mode.

3 Start the selected program source.

Tape Dubbing



1 Insert the recorded tape into tape deck 1 (or the DAT deck).

2 Insert a blank tape into tape deck 2 and adjust the recording level.

3 Press TAPE 1 or DAT to select the deck for playback.

4 Start the playback of the tape (or the DAT) in tape deck 1 (or the DAT deck), and set tape deck 2 in the recording mode.
Dubbing will start.

Notes on recording

- Use ADAPTOR OUT for the recording with the equalizer and SURROUND effects.
- For other REC OUT jacks, the settings of the VOLUME, SURROUND, BALANCE, and graphic equalizer do not have any effect on recording.

Monitoring the recorded sound

If you have connected a tape deck having separate record and playback heads to the TAPE 2 jacks, you can monitor the recording results. While recording or dubbing, press the TAPE 2 MONITOR button. To listen to the source sound again, press the button again.

Note on tape dubbing

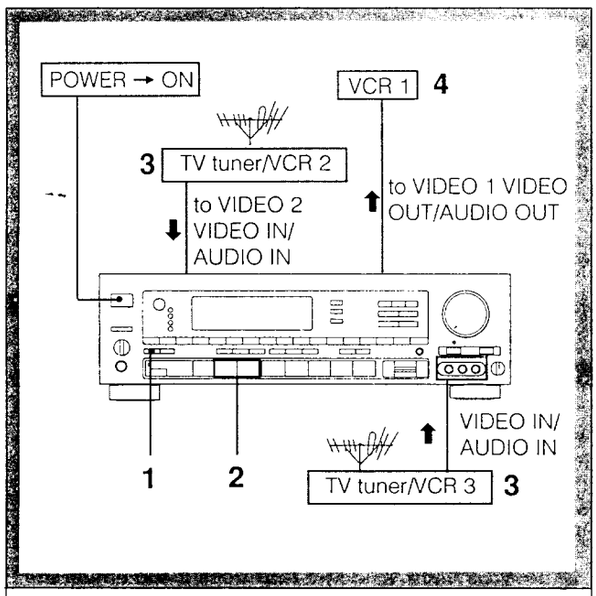
Tape dubbing is possible only in the following directions:

From (playback side)	To (Recording side)	FUNCTION selector to be pressed
Tape deck connected to TAPE 1 IN	Tape deck connected to TAPE 2 OUT	TAPE 1
	DAT deck connected to DAT OUT	
DAT deck connected to DAT IN	Tape deck connected to TAPE 1 or 2 OUT	DAT

Video Tape Editing

Preparation
If the AUDIO indicator is lit in the display window, press the EDIT AUDIO button to make the indicator go out.

With the STR-AV1070X



1 Press EDIT VIDEO to select the playback-side VCR
2▷ 1 or 3▷ 1 appears on the VIDEO EDIT display area.
2▷ 1: for VCR 2
3▷ 1 : for VCR 3

2 Press VIDEO 2/LD or VIDEO 3 to select the video signal to monitor on the monitor TV.
VIDEO2/LD : for VCR 2
VIDEO 3: for VCR 3

3 Set the playback-side VCR to the playback mode.

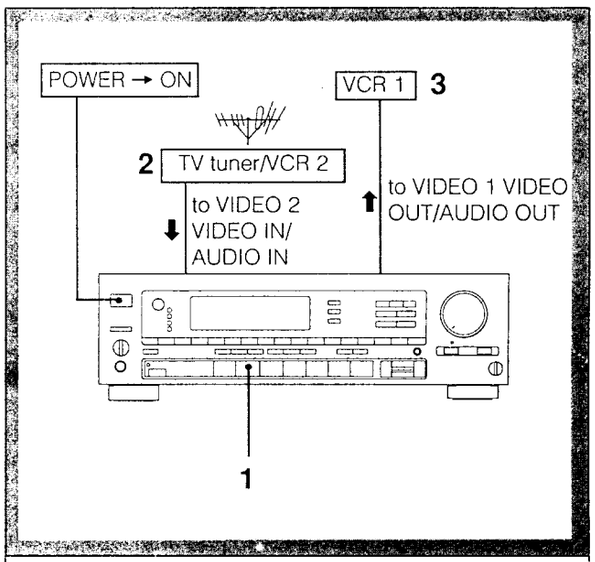
4 Set VCR 1 to the recording mode.
Edit will begin.

To switch the playback-side VCR during editing
Press EDIT VIDEO. Each time you press the button, the playback-side VCR switches from VCR 2 or 3 to VCR 3 or 2.

To view the other video source(s) on the monitor TV during editing
Press the appropriate FUNCTION selector, VIDEO 1, VIDEO 2/LD, or VIDEO 3.

Listening to an audio program during video tape editing
1. Press the appropriate FUNCTION selector.
2. Start the selected audio program source.

With the STR-AV970X



1 Press VIDEO 2/LD.

2 Set VCR 2 to the playback mode.

3 Set VCR 1 to the recording mode.

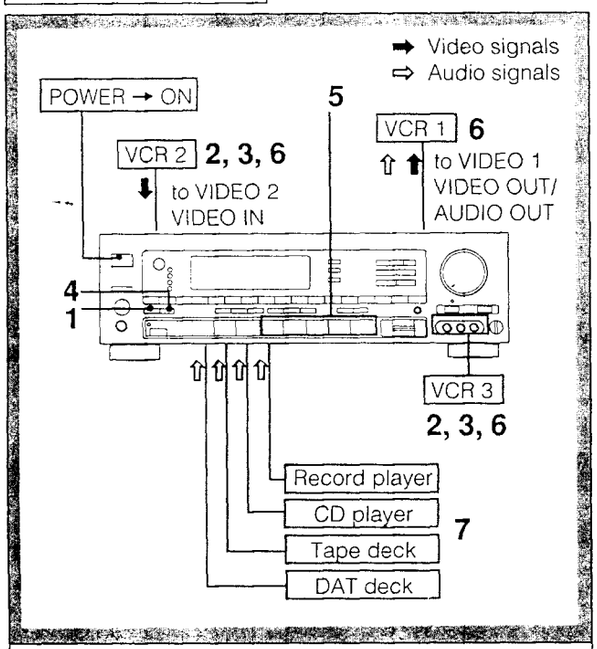
Listening to an audio program during video tape editing
1. Press the appropriate FUNCTION selector.
2. Start the selected audio program source.

Recording a TV program
You can record a TV program on VIDEO 1.

Adding New Sound on a Video Tape during Video Editing

During video tape editing, you can add the desired sound on the recording-side video tape from various audio program sources.

With the STR-AV1070X



1 Press EDIT VIDEO to select the playback side VCR.
2▷ 1 or 3▷ 1 will appear in the VIDEO EDIT display area
2▷ 1: for VCR 2
3▷ 1: for VCR 3

2 Insert a recorded video tape into the playback-side VCR and set the VCR to the playback mode.

3 At the point where audio dubbing is to start, press the PAUSE button on the playback-side VCR.

4 Press EDIT AUDIO.

EDIT
VIDEO
AUDIO 2▷1

AUDIO indicator appears.

5 Select the audio program source with the FUNCTION selectors.

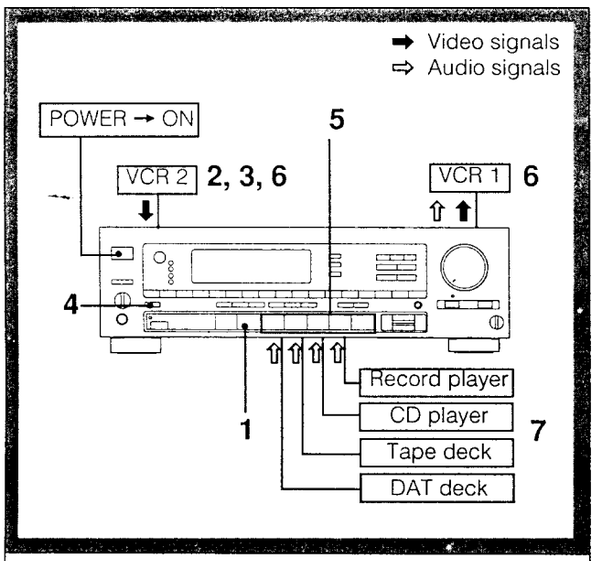
6 Release the pause mode of the playback-side VCR and set VCR 1 to the recording mode.

7 Start the selected audio program source.
Audio dubbing will start.

Adding New Sound on a Video Tape during Video Editing

During video tape editing, you can add the desired sound on the recording-side video tape from various audio program sources.

With the STR-AV970X



1 **Press VIDEO 2/LD.**

2 **Insert a recorded video tape into VCR 2 and set the VCR to the playback mode.**

3 **At the point where audio dubbing is to start, press the PAUSE button on VCR 2.**

4 **Press EDIT AUDIO.**

AUDIO indicator appears.

5 **Select the audio program source with FUNCTION selectors.**

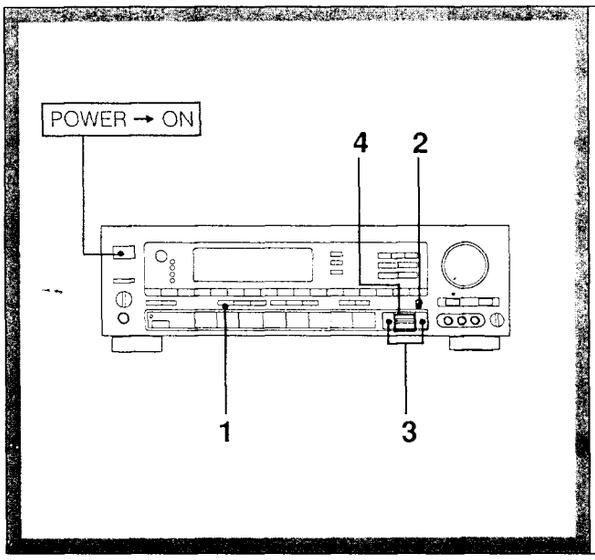
6 **Release the pause mode of VCR 2 and set VCR 1 to the recording mode.**

7 **Start the selected audio program source.**
Audio dubbing will start.

Using the Graphic Equalizer

Creating a Equalization Curve

You can enjoy a music with a desired equalization curve.



1 Press EQUALIZER ON/OFF, so that EQUALIZER ON appears in the display window.

2 Press CURSOR MODE to set the EQUALIZER mode.

3 Press ◁ or ▷ to select the frequency of which the level you want to raise or lower.

4 Press △ or ▽ to raise (or lower) the level of the selected frequency.

5 Repeat steps 3 and 4 for other frequencies until you obtain the desired equalization curve.

Adjustable frequency bands and the effect of level adjustment

63 Hz: Lowering the level will cut the ventilation noise of a music hall, hum of electronic instruments, boomy bass, etc.
Raising the level will reinforce the heavy bass part of a pipe organ or add depth to the bass sound.

160 Hz: Boosting or cutting the normal bass.

400 Hz: Increasing or decreasing the power, spaciousness and warmth of the sound.

1 kHz: Providing more presence for vocals, and moving the sound forward or into the background.

2.5 kHz: Lowering the level will reduce stridency, and raising will make the base sound brighter.

6.3 kHz: Increasing or decreasing the brightness of the sound; for example, raising the level will make the violin sound silky smooth.

16 kHz: Changing the general atmosphere rather than the sound itself.
Raising the level will highlight the delicate quality of instrumental sound, and lowering will reduce high-frequency noise such as the resonant peak of a cartridge, tape hiss, etc.

To defeat the equalizer effect

Press EQUALIZER ON/OFF.
The EQUALIZER OFF appears in the display window and the equalizer circuit is bypassed.
To restore the previous effect, press the EQUALIZER ON/OFF again.

To make the equalization curve flat

Press FLAT.

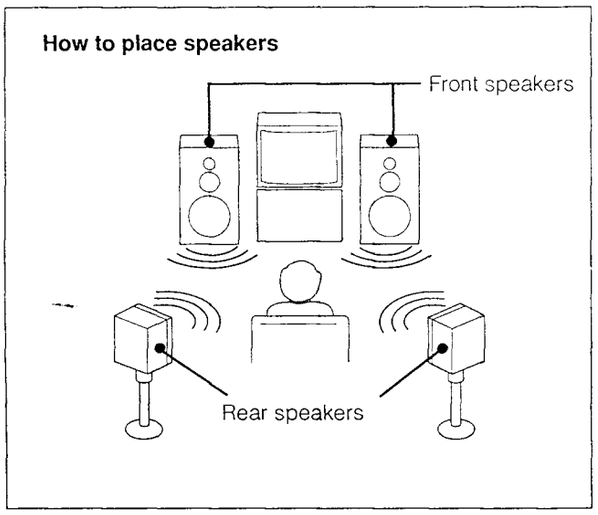
Spectrum analyzer display

Every time you press the EQUALIZER GRAPHIC button, the display of equalizer curve, real time analyzer and peak hold is cyclically switched.

- Equalizer curve shows the settings of the equalizer controls.
- Real time analyzer shows the level of each frequency range.
- Peak hold mode holds the highest input of each frequency range for several seconds.

Obtaining the Surround Effect

Available Types of Effects

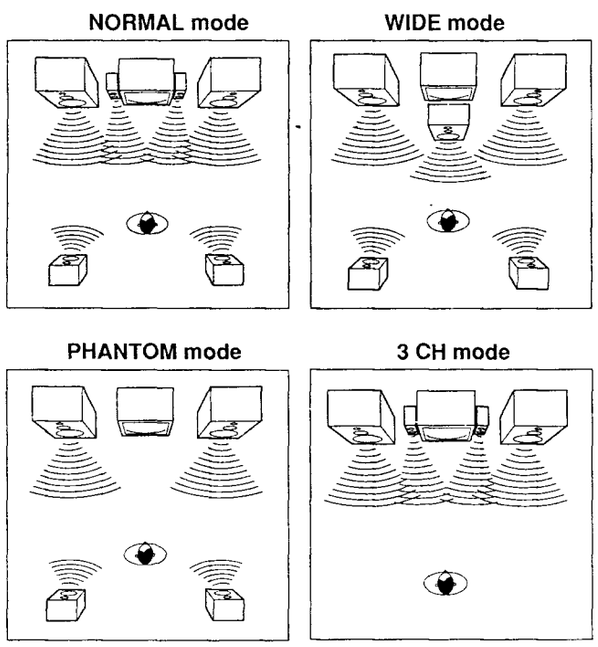


HALL: Provides reverberation effect that is produced in a concert hall.

SIMULATED: Gives a simulated stereo effect to monaural sound.

DOLBY PRO LOGIC: The Dolby Pro Logic Surround Decoder has the same functions for playback, such as movie theaters and gives a theater-like experience in your listening room, naturally reproducing the audio sound field.

Placement of Speakers for DOLBY PRO LOGIC Mode



NORMAL mode
When connecting smaller speakers than the front speakers, such as that of TV for a center speaker.

WIDE mode
When connecting the same size speaker as the front speakers for a center speaker.

PHANTOM mode
When connecting only front and rear speakers.

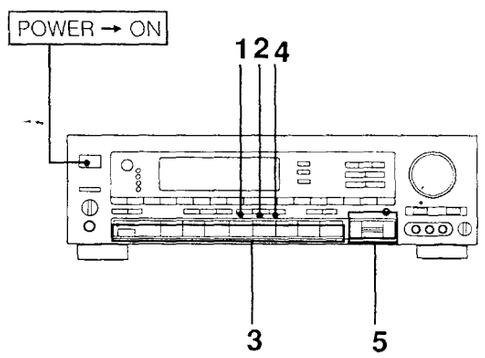
3CH mode
When connecting front speakers and a center speaker.

Center off mode
Set the receiver to this mode to turn off the center speaker.

Note

- The amount of the DBFB effect varies according to the Dolby Pro Logic mode.
- For STR-AV1070X only:
  When listening to the center speaker with another power amplifier through the PRE OUT jacks, set the center speaker level below –20 dB.

Adjusting the Speaker Level for Dolby Surround System



1 Press SURROUND ON/OFF to ON.

2 Press SURROUND MODE so that the DOLBY indicator is in box on the display.

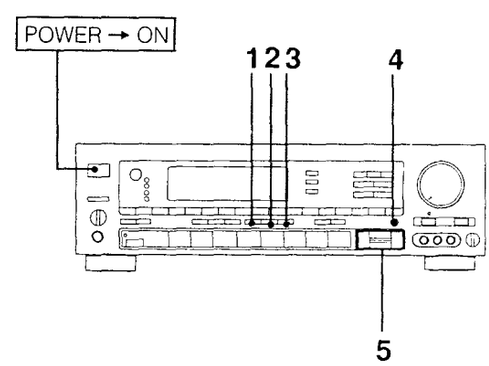
3 Select a program source with the FUNCTION selector and start playback.

4 Select the DOLBY PRO LOGIC MODE according to your speaker system.

5 Press the CURSOR MODE button to set the SURROUND mode. To adjust the level of rear speakers, press △ or ▽ to select the rear level mode and then adjust the level with ◁ or ▷ or REAR VOL +/– on the remote commander. To adjust the level of center speakers, press △ or ▽ to select the center level mode and then adjust the level with ◁ or ▷ or CENTER VOL +/– on the remote commander so that sound from each speaker is heard in the same volume level at the listening position. (When adjusting the VOLUME control on the receiver, all speakers are adjusted simultaneously.)

To adjust the level with a test tone signal
Press the T (Test) TONE button on the remote commander after step 4. A test tone (pink noise) signal is sent in succession to each speaker. Adjust the level of rear speaker with ◁ or ▷ or REAR VOL +/– on the remote commander and the level of center speaker with △ or ▽ or CENTER VOL +/– on the remote commander.
To stop the test tone signal
Press the T TONE button again.

Listening with Surround Effect



1 Press SURROUND ON/OFF to ON.

2 Press SURROUND MODE and select the desired mode, HALL, SIMULATED, DOLBY.

3 If you select DOLBY on step 2, press DOLBY PRO LOGIC MODE button, and select the desired mode.

4 Press CURSOR MODE to set the SURROUND mode.

5 Press △ or ▽ to select the delay time mode and adjust the delay time with ◁ or ▷.

To turn off the surround effect
Press SURROUND ON/OFF again.
The normal sound without surround effect will resume.

Both level and delay time of the surround is memorized each time after adjusting with the CURSOR operation buttons. They will be restored when the surround mode is resumed.

Storing the Sound Effect — Sound Field Memory

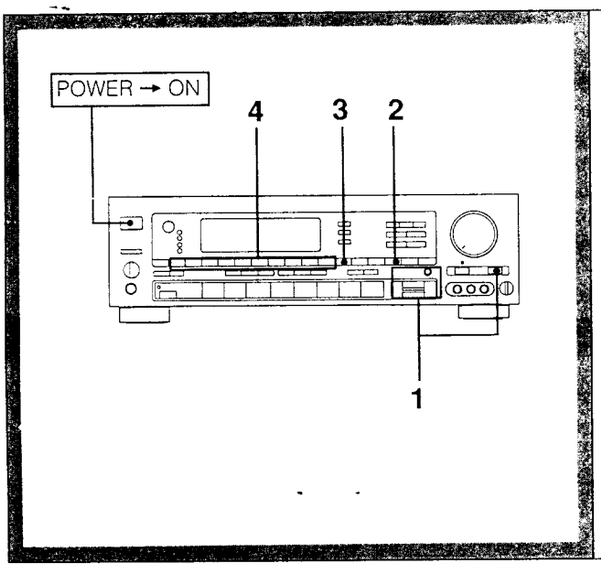
Sound field memory can memorize 10 types of the sound effect settings, that allows you to easily call up the desired sound effect.

Effects that can be stored into the memory

- Equalizer curves
- Surround effects
- DBFB (Dynamic Bass Feed Back) setting

11 types of sound field setting is already stored at the factory.
You can replace them with your desired settings.

Storing the Sound Field Setting



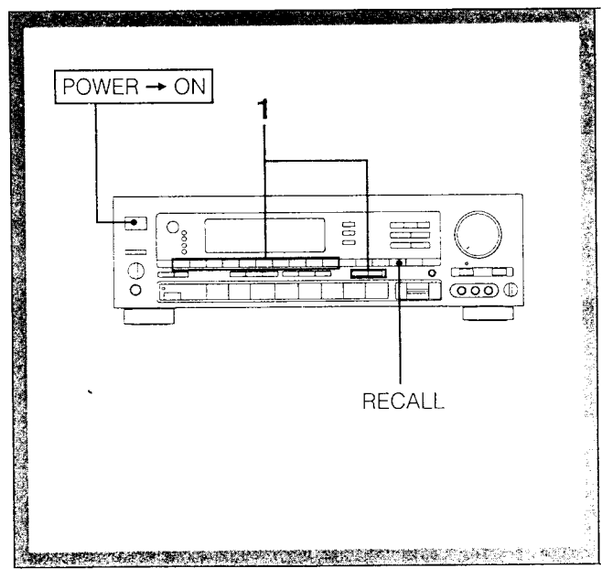
1 Create equalizer curve and set surround and DBFB (Dynamic Bass Feed Back) effects as you like.

2 Press the RECALL button (when the receiver is in a mode other than TUNER, skip this step).

3 Press the MEMORY button.

4 Press the numeric button to be stored (1 to 0).

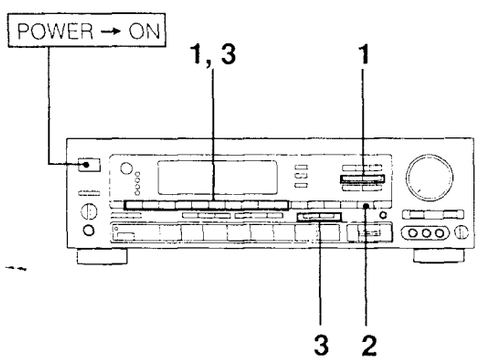
Calling up the Sound Field Setting



1 Press the SOUND FIELD PRESET +/– buttons or the numeric buttons. To use the numeric buttons in tuner mode, first press the RECALL button.

Restoring to the setting stored at the factory
Press POWER while pressing the "+" SOUND FIELD PRESET button.
All of the 10 settings are then restored.

Storing the Sound Field Memory to Preset Stations

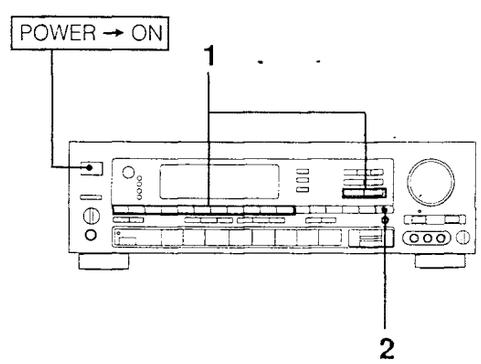


1 Tune in a station to be preset with sound field data.

2 Press the SOUND FIELD PGM SET button.

3 Press the numeric buttons (1 to 0) or the SOUND FIELD PRESET +/– buttons to select desired sound field effect.

Receiving the Preset Station Stored with the Linked Sound Field Setting



1 Receive the preset station.

2 Press the PRESET SF LINK ON/OFF button so that LINK ON appears in the display window.

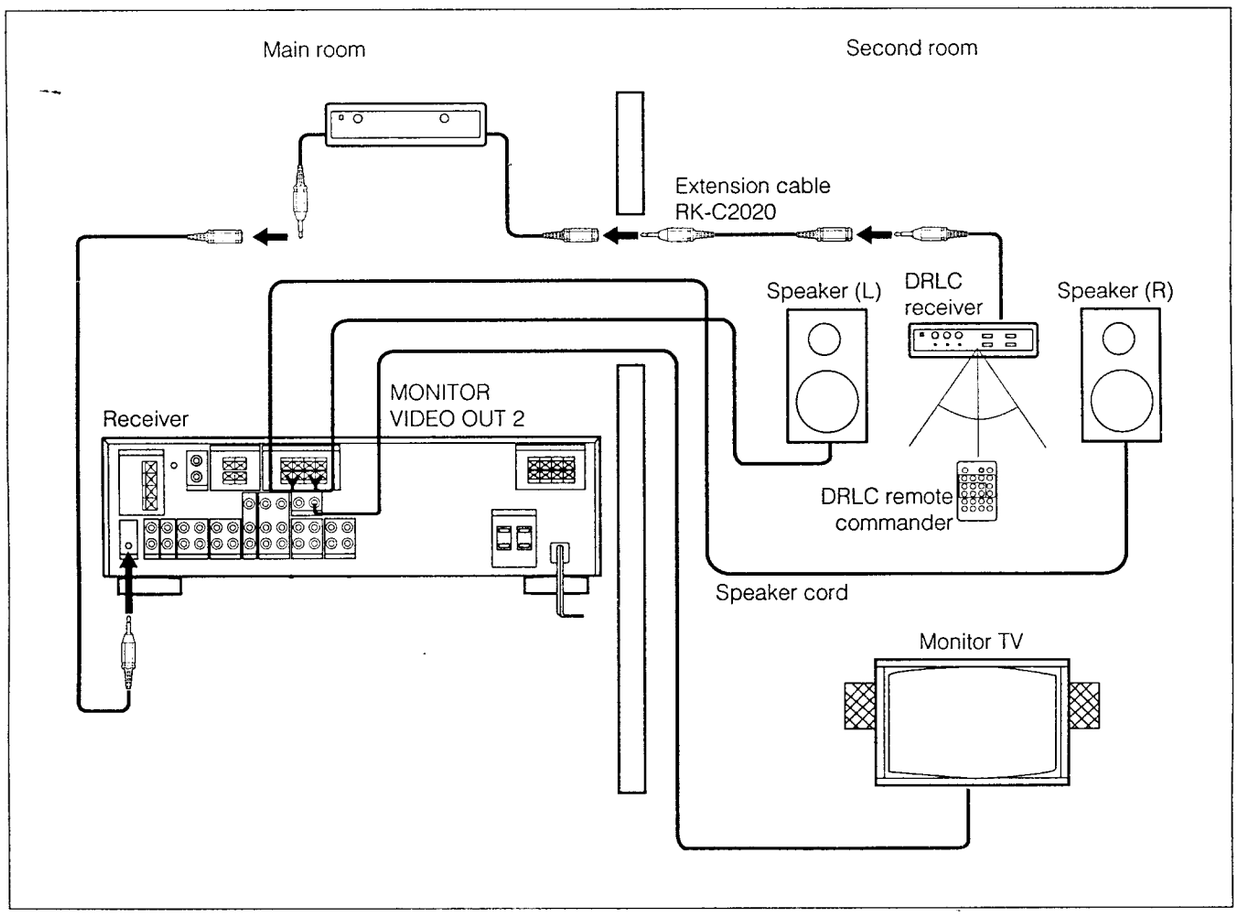
To change sound field setting
Press the PRESET SF LINK ON/OFF button to OFF, and then adjust the sound effect as you desire.

Enjoying Sound in Another Room

Overview

The Dual Room Link Control allows you to "link" a second room to your main or primary listening room.
When the RM-S2070K Dual Room Link Control Kit (optional) and optional speakers and monitor TV are properly connected to your audio system and they are placed in the second room, either the same program source being played in the main room or a different program source can be heard in the second room.

Connections



1 Press DRLC POWER. (The POWER switch on the receiver does not need to be turned on.)
2 To listen to CD or tape in the second room, press CD ► or DECK A or B ◄/►.
3 Control the system with the remote commander for the second room.

The following examples illustrate program source options for the main and second room:

Listening in the main room	Listening in the second room
CD	FM broadcast
TAPE	CD
Sound from TV	Same sound from TV
Off	FM broadcast
Sound from video source (with surround effect)	Second room system defeated
FM broadcast	Off

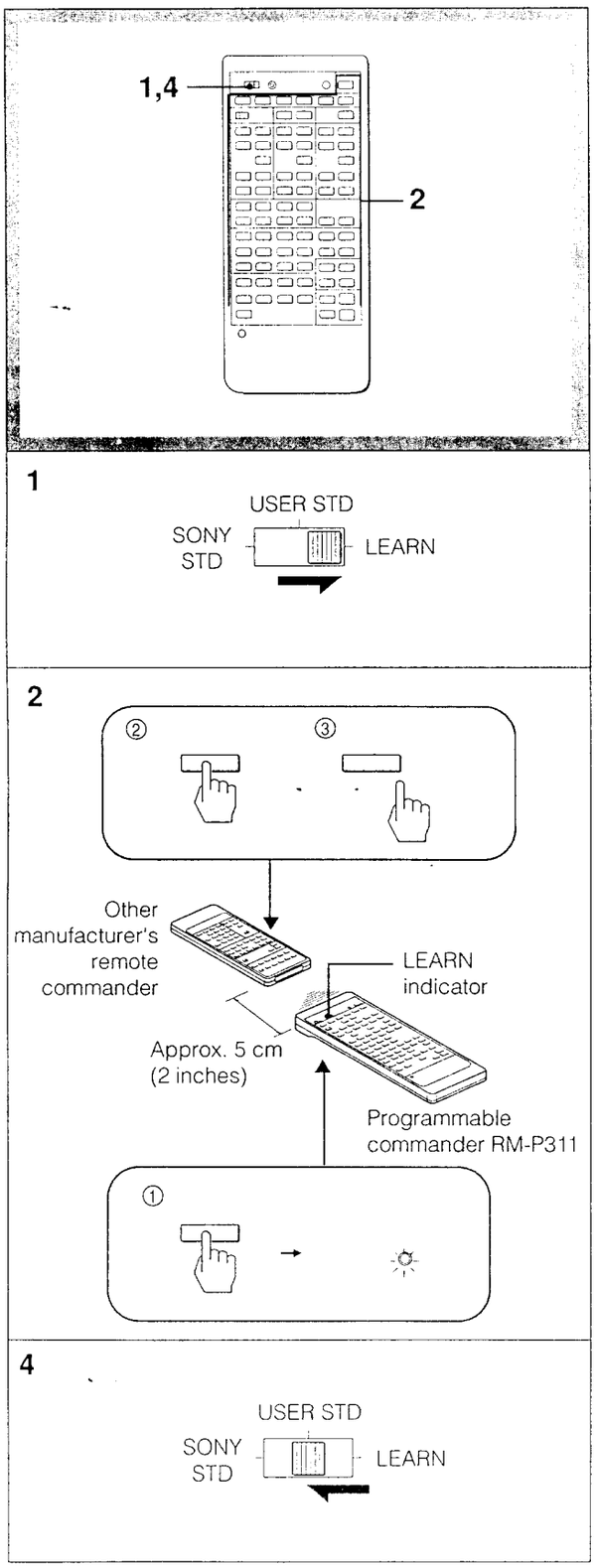
Notes

- The surround system in the main room and DRLC function cannot be operated simultaneously.
- When the receiver receives a remote control signal from the second room, the DRLC POWER switch flashes. During this flashing, the receiver cannot receive the remote control signal from the main room.
- You cannot use the following functions from the second room.
  - Surround effect
  - Equalizer control
  - DBFB effect
  - Muting
  - TAPE 2 MONITOR

Please refer to the operating instructions of RM-S2070K for details.

How to Use the Learning Function (STR-AV1070X only)

Programming Signals of Other Audio/Video Equipment with Programmable System Commander RM-P311



The RM-P311 learns various functions of other remote commanders emitting infrared rays and allows you to control most of audio and video equipment from a distance.

1 Set the mode selector to LEARN.

2 Program a signal.
① Press and hold the button which shall "learn" the remote-control signal until the LEARN indicator lights up.
② Press and hold the button of other manufacturer's remote commander whose signal is to be learned.
③ Remove your finger(s) from the button(s) after the LEARN indicator goes off.

The two remote commanders must:
- face straight each other.
- be placed at a distance of approx. 5 cm (2 inches).
- not be moved during programming operation.

3 Repeat operation for each button to be programmed.

4 Set the mode selector to USER STD or SONY STD.

After programming
Be sure to test if the equipment really works with the programmed signals.

Number of signals that the commander can learn
It depends on the format of the signal. If you program signals of Sony equipment, approximately 50 - 60 signals can be programmed.

If the LEARN indicator flashes or does not go out in step 2-②, ③.
The memory capacity has become full. This occurs when other signals stronger than the remote-control signals have been stored because the signals were programmed in a noisy environment or the remote commanders were placed too far apart from each other.
→ Clear all the signals following the procedure on the right and program again from the beginning under the proper conditions.

Notes on programming

- Remote-control signals of equipment of manufacturers other than Sony can be programmed only when they are compatible with the infrared wireless remote control system. Since the programmable commander can "learn" only the signals output from another remote commander, it cannot control equipment that does not use a remote commander. Also, note that there are some special remote-control signals that cannot be programmed.
- Do not attempt to use the programmable commander with an air conditioner or other household appliances.

To program a new signal onto a previously programmed button

Follow the programming procedure.
The previously programmed signal is cleared and replaced by the new signal.

To clear all programmed signals

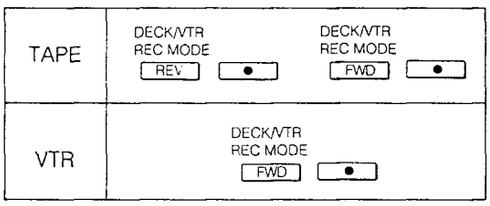
1 Set the mode selector to LEARN.
2 Press and hold any button of the programmable area until the LEARN indicator lights up.
3 Press PROGRAM CLEAR until the LEARN indicator flashes and goes off.

Note

It is not possible to clear the programmed content of just one button.

To program a signal onto the ● REC button in the TAPE or VTR section

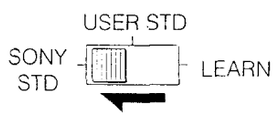
It is not possible to operate any equipment with only the ● REC button. To program a signal under the ● REC button, press and hold the following buttons at the same time in step **2-** ①.

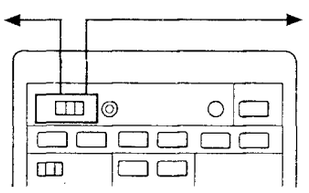


Controlling Equipment

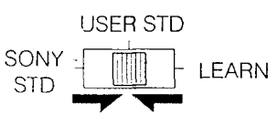
By switching the mode selector as shown below, a single button alternately controls Sony equipment and another manufacturer equipment.

To control Sony equipment





To control equipment with programmed signals



When Sony equipment cannot be remote-controlled

Program the signal in the same way as for equipment from other manufacturers. In this case, even with Sony equipment, set the mode selector to USER STD.

Notes on Battery

If the LEARN indicator does not light when a button is pressed, the batteries are almost exhausted.
When the batteries are exhausted, the remote commander can no longer operate the unit or programming becomes impossible.
If this happens, replace both batteries with new ones. We recommend the use of alkaline batteries for prolonged use.

If no signal has been programmed

The programmable commander can control Sony equipment even when the mode selector is set to USER STD.

If the equipment works incorrectly

Press RESET.
The programmed contents of the buttons are not cleared by pressing RESET.

Troubleshooting Guide

Before proceeding through the check list below, examine the connections and the procedures outlined in the manual. Should any problem persist after you have checked the following items, consult your nearest Sony dealer.

Radio Broadcast Reception

Problem	Cause	Solution
No FM station can be located by Auto-Tuning operation.	The signal strength of the stations is too weak.	Press the TUNING LEVEL button to set the receiving signal level low.
The STEREO indicator flickers or does not appear when receiving stereo programs.	A very weak FM station or a noisy FM program is received.	Adjust the antenna or connect an external FM antenna.
		Press the FM MODE button to set to MONO mode.
No station can be tuned in by Auto-Tuning operation.	The AM tuning interval is set incorrectly.	Change the tuning interval according to the AM frequency allocation system of your country. (See page 5)
	The signal strength of the station is too weak for Auto-Tuning.	Adjust the antenna.
		Directly tune in the stations. (See page 14)
No stations can be tuned in by pressing PRESET TUNING +/–.	No stations have been preset.	Preset the stations. (See page 16)

Graphic Equalizer Function

Problem	Cause	Solution
Equalization curve adjustment is impossible.	The unit is in a wrong mode.	Press CURSOR MODE to set the equalizer mode.
	Equalization circuit is turned off.	Press EQUALIZER ON/OFF.

Surround Function

Problem	Cause	Solution
Surround effect cannot be obtained.	The unit is in a wrong mode.	Press CURSOR MODE to set the surround mode.
Surround effect cannot be adjusted.	Surround circuit is turned off.	Press SURROUND ON/OFF.

Remote Commander

Problem	Cause	Solution
The remote commander will not operate.	The batteries are exhausted.	Replace the batteries with new ones.
	The commander head is not pointed toward the unit's front.	Point the commander head toward the receiver.
	There is an object between the commander and the receiver.	Remove the object.

Sound

Problem	Cause	Solution
No sound is heard even if you adjust VOLUME.	The speaker or program source equipment is not connected correctly.	Connect the equipment correctly.
	The SPEAKERS selector is not set correctly.	Set the selector correctly.
	The TAPE 2 MONITOR button has been pressed for a program source other than tape deck 2. (The indicator is lit.)	Press the button to disengage.
	A wrong FUNCTION selector has been pressed.	Press the correct FUNCTION selector.
Sound is heard only at a very low volume.	The MUTING button has been pressed. (The MUTING indicator is lit.)	Press the button to disengage.
One channel does not transmit audio, or the volume from the left and right speakers is unbalanced.	The BALANCE control is not set appropriately.	Adjust the BALANCE control.
	The speaker or program source is not connected correctly.	Check and properly connect the equipment.
There is an abrupt loss of sound from one or both of the speakers, and the PROTECTOR indicator flickers in the display window.	A short-circuit problem activates the protective circuit.	Turn off the unit, eliminate the short-circuit problem and turn on the power again. If there is no short-circuit problem, consult your nearest Sony dealer.
Sound transmitted from the speakers is reversed.	The speakers are not connected correctly.	Connect the right speaker to the R SPEAKER terminals and the left speaker to the L SPEAKER terminals.
There is lack of bass sound or the instrument position is obscure.	The +/– connection of the speaker is reversed.	Connect the speaker with the correct phase.
Severe hum or noise is heard.	The connecting cords are not shielded type.	Use shielded type cords.
	A transformer, motor, TV or fluorescent light affects the connecting cords.	Place the connecting cords in a location away from a transformer or motor, and at least 3 meters (10 feet) from a TV set or a fluorescent light.
	The audio components are too close to a TV set.	If both are used at the same time, separate the TV from the audio components.
	The unit is not grounded.	Connect the ground wire to the antenna ground terminal.
	The connections are loose.	Make secure connections.
	The plugs and jacks are dirty.	Wipe the plugs and jacks with a cloth lightly dampened with alcohol.

Specifications

Audio Power Specifications

POWER OUTPUT AND TOTAL HARMONIC DISTORTION

With 8-ohm load, both channels driven, from 20 - 20,000 Hz, rated 120 watts (STR-AV1070X) or 100 watts (STR-AV970X) per channel minimum RMS power, with no more than 0.015% (STR-AV1070X) or 0.03% (STR-AV970X) total harmonic distortion from 250 milliwatts to rated output.

Other Specifications

Amplifier section

		STR-AV1070X	STR-AV970X
Dynamic power output	8 ohms, at 1 kHz IHF	195 + 195 watts	140 + 140 watts
	4 ohms, at 1 kHz IHF	250 + 250 watts	190 + 190 watts
Harmonic distortion at rated output		Less than 0.015%	Less than 0.03%
Intermodulation (IM) distortion at rated output		Less than 0.015%	Less than 0.03%
Power output of center amplifier (STR-AV1070X only)		30 watts (15 + 15 watts, 8 ohms at 1kHz)	
Power output of surround(REAR)/ DRLC amplifier (8 ohms, at 1kHz)		15 + 15 watts	
Frequency response	PHONO	RIAA equalization curve ±0.5 dB	
	CD, DAT, TAPE 1,2 VIDEO 1,2,3*	10 Hz — 70 kHz $^{+0}_{-1}$ dB	
Residual noise		Less than 70µV	
Damping factor (8 ohms, at 1kHz)		50	
Input sensitivity/ impedance	PHONO MM	2.5 mV, 50 kilohms	
	DAT,CD, VIDEO 1,2,3* TAPE 1,2	150 mV 50 kilohms	
S/N	PHONO MM	87 dB 79 dB** (A,2.5mV)	
	DAT, CD VIDEO 1,2,3* TAPE 1,3	105 dB 85 dB** (A,150mV)	
Output	DAT OUT, TAPE OUT 1,2 VIDEO 1	150 mV 10 kilohms	
	SPEAKERS	Accepts seakers of 8-16 ohms	
	HEADPHONES	Accepts headphones of high and low impedance	
	CENTER OUT, REAR OUT	2.5 V, 1kilohm	
	PRE OUT	1 V, 1Kilohm	
MUTING		-20dB	
DBFB		+10 dB (70 Hz)	
Graphic Equalizer		7-band ±10 dB at 63Hz, 160 Hz, 400Hz,1kHz, 2.5 kHz, 6.3 kHz and 16 kHz	

*STR-AV1070X only
** 78IHF

FM tuner section

Frequency range		87.5 — 108.0 MHz
Antenna terminals		300 ohms, balanced 75 ohms, unbalanced
Sensitivity at 50 dB		18.3 dBf, 4.5 μV (mono) 38.3 dBf, 45 μV (stereo)
Usable sensitivity		11.2 dBf, 2 μV (IHF)
S/N	Mono	80 dB
	Stereo	74 dB
Harmonic distortion at 1 kHz	Mono	0.3 %
	Stereo	0.5 %
IM distortion	Mono	0.3 %
	Stereo	0.5 %
Separation		45 dB at 1 kHz
Frequency response		30 Hz — 15 kHz $^{+0}_{-2}$ dB
Selectivity		60 dB at 400 kHz
Capture ratio		1.2 dB
AM suppression ratio		54 dB
Image response ratio		70 dB
IF response ratio		70 dB
Spurious response ratio		80 dB
RF intermodulation at 800 kHz		60 dB
Auto tuning threshold	Low	30 dBf
	High	50 dBf

AM tuner section

Frequency range	530 — 1710 kHz (with 10 kHz interval) 531 — 1710 kHz (with 9 kHz interval)
Antenna	Loop antenna
Usable sensitivity	50 dB/m (at 1,000 kHz or 999 kHz)
S/N	54 dB (at 50 mV/m)
Harmonic distortion	0.5% (50 mV/m, 400 Hz)
Selectivity	35 dB (9 kHz), 40 dB (10 kHz)
Auto tuning threshold	55 dB/m

Video section

	STR-AV1070X	STR-AV970X
Inputs	VIDEO 1,2,3: 1 Vp-p 75 ohms	VIDEO 1,2: 1 Vp-p 75 ohms
Outputs	VIDEO 1, MONITOR: 1 Vp-p 75 ohms	

General

		STR-AV1070X	STR-AV970X
System	Tuner section	PLL quartz-locked digital synthesizer system	
	Preamplifier section	Low-noise NF type equalizer	
	Power amplifier section	Pure-compliimentary SEPP	
Power requirements		120 V AC,60 Hz	
Power consumption		USA model: 265 watts Canada model: 565 VA	USA model: 220 watts Canada model: 450 VA
AC outlets		Two switched, total 120 watts	
Dimensions		430 x 147.5 x 350 mm (17 x 5 13/16 x 14 1/8 inches)	
Weight		12.5 kg (27 lb 9 oz)	10 kg (22 lb 1 oz)

Supplied accessories
FM wire antenna (1)
AM loop antenna (1)
Remote commander (1)
RM-P311 (STR-AV1070X)
RM-U211 (STR-AV970X)
Sony Batteries SUM-3(NS) (2)

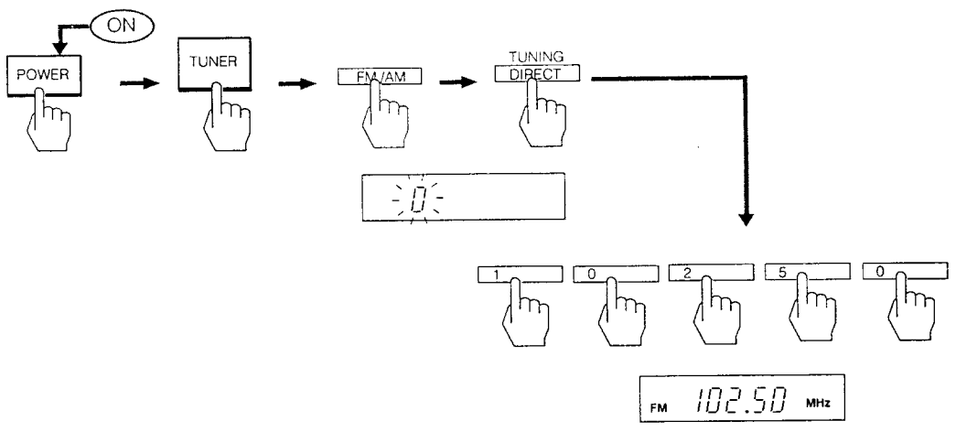
Design and specifications subject to change without notice.

Quick Reference

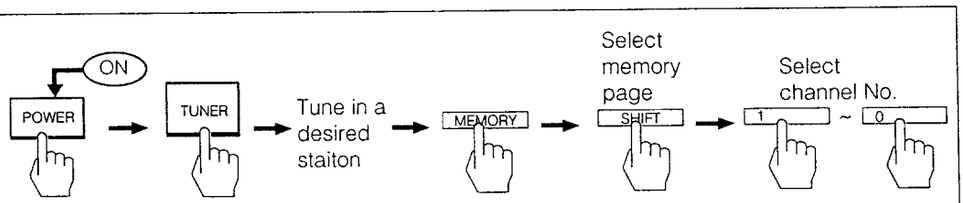
When operate the unit consulting this Quick Reference, make sure that the unit and the various audio/video equipment are properly connected.

Directly tuning in an FM or AM station

Ex. Tuning in the FM station of 102.5 MHz

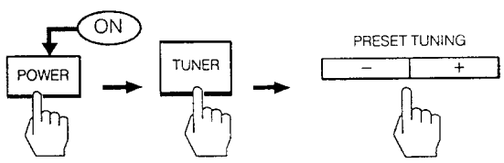


Presetting stations

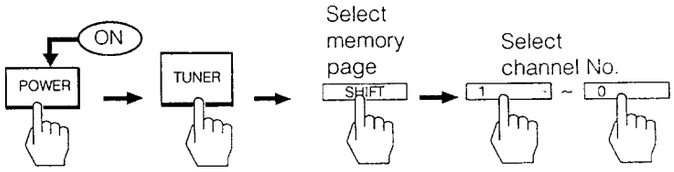


Tuning in a preset station

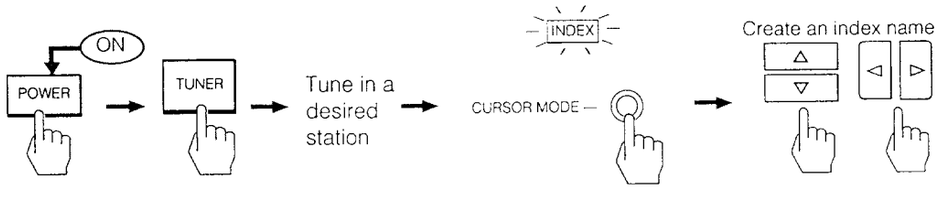
Method A



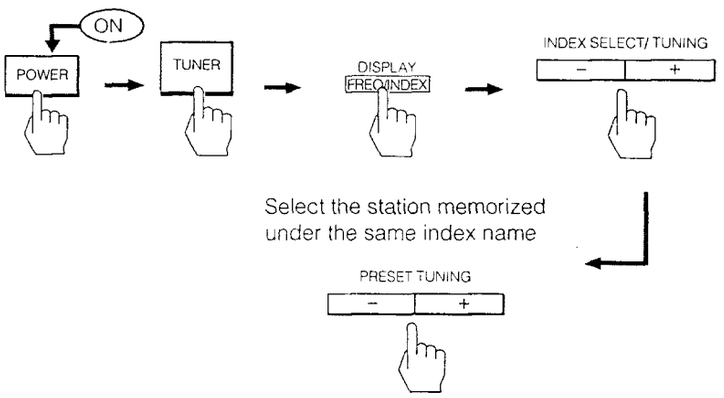
Method B



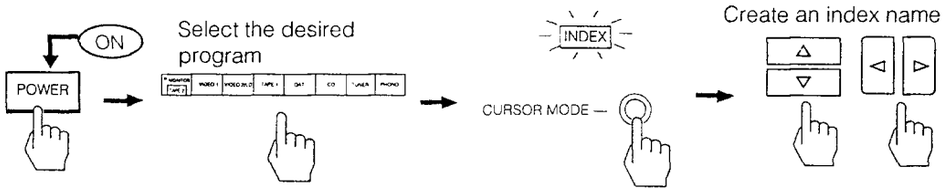
Presetting stations with Index Name



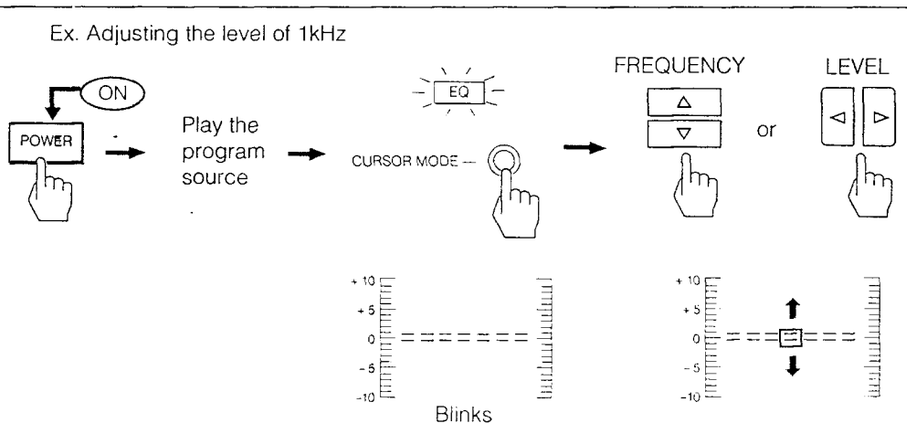
Tuning in a categorized station-index tuning

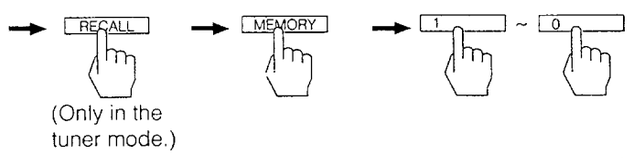
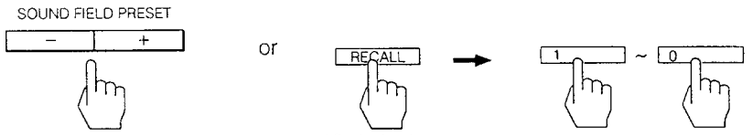
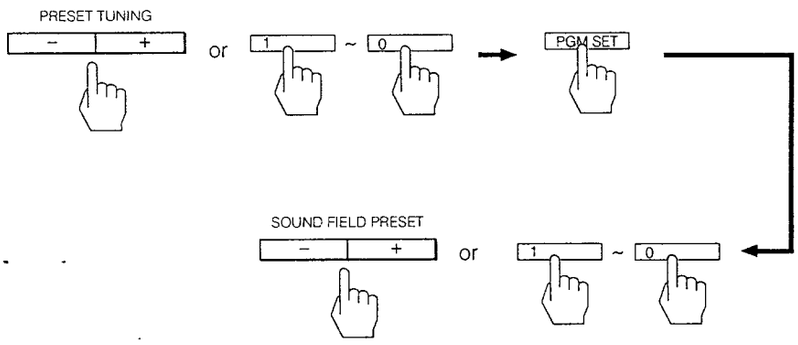


Labeling the program sources



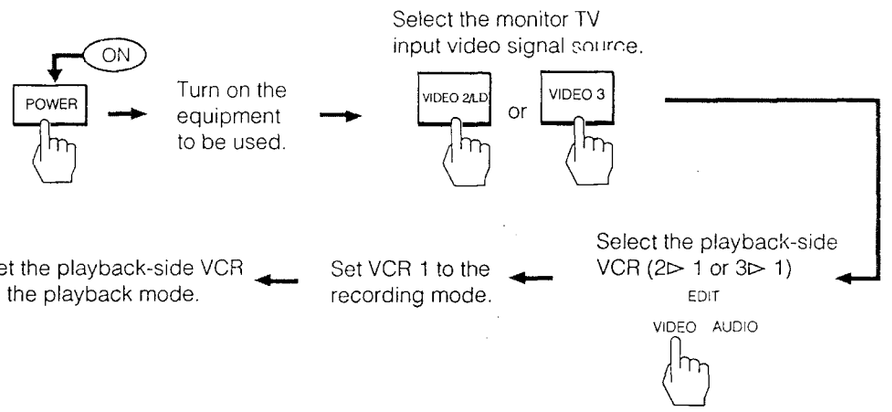
Adjusting sound quality (creating a new equalization curve)



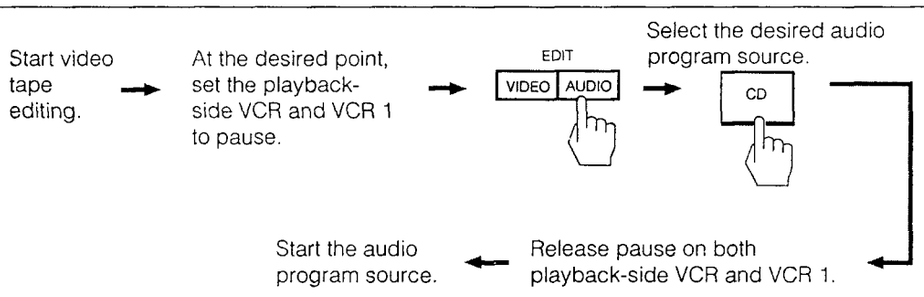
Storing the sound field data	Creating an eqalizer curve and set surroud and DBFB effects.  (Only in the tuner mode.)
Calling up the sound field data	 (Only in the tuner mode.)
Linking the sound field memory to preset stations	

Video Operations with the STR-AV1070X

Video tape editing

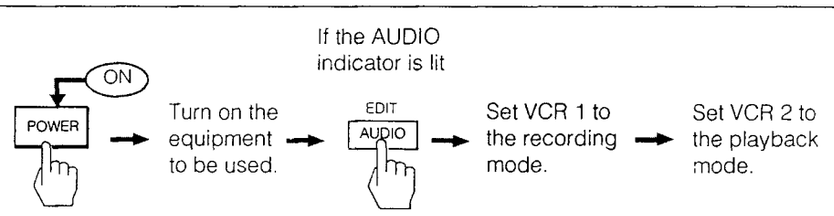

ON
POWER
Turn on the equipment to be used.
Select the monitor TV input video signal source.
VIDEO 2/LD
or
VIDEO 3
Select the playback-side VCR (2▷ 1 or 3▷ 1)
EDIT
VIDEO AUDIO
Set VCR 1 to the recording mode.
Set the playback-side VCR to the playback mode.

Audio dubbing during video tape editing

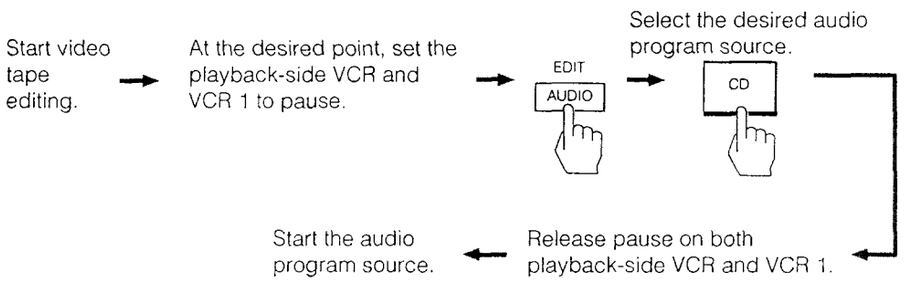

Start video tape editing.
At the desired point, set the playback-side VCR and VCR 1 to pause.
EDIT
VIDEO AUDIO
Select the desired audio program source.
CD
Release pause on both playback-side VCR and VCR 1.
Start the audio program source.

Video Operations with the STR-AV970X

Video tape editing



Audio dubbing during video tape editing


Start video tape editing.
At the desired point, set the playback-side VCR and VCR 1 to pause.
EDIT
AUDIO
Select the desired audio program source.
CD
Release pause on both playback-side VCR and VCR 1.
Start the audio program source.